99. Wood, K. L., Invited Presentation, "The Singapore University of Technology and Design (SUTD): Opportunities & Bold Initiatives for 21st Century Education and Research in Design and Innovation," Tecnologico de Monterrey, Monterrey, Mexico, August 2012.

100. Wood, K. L., Keynote Address, "Perspectives, Perceptions, and Approaches in Design and Innovation - The SUTD-MIT International Design Centre (IDC)," *IX Foro Seis Sigma e Innovation Conference*, Monterrey, Mexico, August 2012.

101. Wood, K. L., Keynote Address, "Imagineering: Designing Today's Dreams into Tomorrow's World," Nanyang Polytechnic, 1,000 Faculty and Students, Singapore, October 2012.

102. Wood, K. L., Invited Presentation, "Imagineering: Designing Today's Dreams into Tomorrow's World," Temasek Polytechnic, 400 Faculty and Students, Singapore, October 2012.

103. Wood, K. L., Keynote Address, "Innovations in Energy Harvesting Approaches for Urban and Rural Infrastructure," *International Conference of Intelligent Unmanned Systems (ICIUS)*, Institution of Engineers, SIM University, Singapore, 2012.

104. Wood, K.L., Invited Presentation, "Imagineering: Designing Today's Dreams into Tomorrow's World," Ngee Ann Polytechnic, 100 Faculty and Students, Singapore, January 2013.

105. Wood, K. L., Moderator, Global Young Scientist Summit, Nobel Laureate Session, Singapore Science Centre, January 2013

106. Wood, K.L., Invited Lead-Off Presentation, "Innovative Methods for Design: Design-by-Analogy, Design tRaNsFoRmErS, and Collaborative Design," *Design Society Rigi Conference*, Paris, France, March 14-15, 2013.

107. Wood, K.L., Invited Presentation, "Demand Focused Smart Energy Management in End User Environments for Sustainable Cities,: *LYK Centre for Innovative Cities, International Advisory Board Meeting*, Fullerton Hotel, Singapore, May 2, 2013.

108. Wood, K. L., Invited Presentation, "The Singapore University of Technology and Design (SUTD): Opportunities & Bold Initiatives for 21st Century Education and Research in Design and Innovation," *Tsinghua University*, Beijing, China, May 9, 2013.

109. Wood, K.L., Invited Presentation, "Innovative Methods for Design: Design-by-Analogy, Design tRaNsFoRmErS, and Collaborative Design," *Tsinghua University*, Beijing, China, May 10, 2013.

110. Wood, K. L., "The Singapore University of Technology and Design (SUTD): Opportunities & Bold Initiatives for 21st Century Education and Research in Design and Innovation," *Lehigh University*, August 1, 2013.

111. Wood, K.L., "Memorandum of Agreement Signing: SUTD-NTU Visualization and Prototyping Laboratory (VP Lab)," *Singapore University of Technology and Design (SUTD)*, August 30, 2013.

112. Wood, K.L., "Grand Opening of the SUTD International Design Centre Facility: Dover Campus," *Singapore University of Technology and Design (SUTD)*, August 30, 2013.

113. Wood, K.L., Invited Presentation, "The SUTD-MIT International Design Centre: Imagining Design…" *Board of Trustees, Singapore University of Technology and Design (SUTD)*, September 10, 2013.

114. Wood, K.L., "An Innovation Ecosystem for Singapore and Asia," *Global Innovation Roundtable 2013*, New Delhi, India, November 18-19, 2013.

115. Wood, K.L., "An Innovation Ecosystem for Singapore and Asia," Invited Workshop, Academic Symposium, on Asian Markets and Consumers, December 18-19, 2013, *Institute on Asian Consumer Insight*, Singapore, Nanyang Business School, NTU.

116. Wood, K.L., "A Perturbation to the Innovation Ecosystem: The SUTD-MIT International Design Centre (IDC)," *EmTech Singapore*, MIT Technology Review, Singapore, January 20-21, 2014.

117. Wood, K.L., "SUTD-MIT International Design Centre," Invited Presentation to Rolls Royce," Singapore, February 12, 2014.

118. Wood, K.L., "Singapore University of Technology and Design(SUTD), the SUTD-MIT International Design Centre (IDC) and TL@SUTD," Invited Presentation, US Secretary of the Air Force, Singapore, February, 2014.

119. Wood, K.L., "Innovating Innovation Processes: The SUTD-MIT International Design Center (IDC)," *Sembawang Shipyard Innovation Carnival*, Keynote Address, March 2014.

120. Wood, K.L., "Design Science and Design Thinking with our Beloved Elders: Spearheading Advancements of an Active Life," *TEDx Binnehof, Creative Solutions for Sustainable Cities*, Singapore, April 1, 2014.

121. Wood, K.L., "The Tan Tock Seng Hospital (TTSH) – SUTD Biomedical Research Collaboration Workshop," Opening Address, April 8, 2014.

122. Wood, K.L., "Imagineering: Designing Today's Dreams into Tomorrow's World," *Asian Physics Olympiad*, Singapore, May 15, 2014.

123. Wood, K.L., "Technical Session 3: Robotics & Autonomy; TL@SUTD: Systems Technology for Autonomous Reconnaissance and Surveillance (STARS)," *Defence R&T Seminar* 2014, May 16, 2014.

124. Wood, K.L., "Imagineering: Designing Today's Dreams into Tomorrow's World," Dunman High School Keynote Address, Singapore, July 9, 2014.

125. Wood, K.L., "Design Innovation through 3D Printing," Plenary Presentation, *National Engineers Day and Singapore Mini Maker Faire 2014*, 18-19 July.

126. Wood, K.L., Otto, K.N., Foong, S.H., Soh, G.S., Mohan R., Wilhelm, E., Bali, A., "Temasek Labs STARS Project – Bio-inspired Micro ISR Robotics," US Air Force Research Laboratory (AFRL) and FSTA, Singapore, August 11, 2014.

127. Wood, K.L., "Imagineering: Designing Today's Dreams into Tomorrow's World," *Ngee Ann Poly's School of Engineering*, Singapore, October 30, 2014.

128. Wood, K.L., "Imagineering: Exploring Design Images, Principles, and Ideation," *Design Workshop, MIT Executive Committee, Board of Trustees*, Singapore, November 7, 2014.

129. Wood, K.L., "SUTD' 4D Pedagogy: Journeys in Hands-On, Active, and Design-Based Learning, Keynote Speech, *SKSS Learning Festival*, Singapore, November 19, 2014.

130. Wood, K.L., "Exploring Senses in Design and Technology: The SUTD-MIT IDC," *Making Sense Symposium, National Design Centre*, Singapore, November 24, 2014.

131. Wood, K.L., "Innovations in Materials Education: Hands-On Activities, Active Learning, and Designettes," *1st Asian Materials Education Symposium*, Invited Speaker, December 11-12, 2014, National University of Singapore, Singapore.

132. Wood, K.L., "Journeys in Design Science, Design Research, and Design Education," *5th International Conference on Research into Design (ICoRD'15)*, 7-9 January 2015, JN Tata National Science Seminar Complex, Indian Institute of Science, Bangalore, India.

Presentation at Technical Meetings (261)

1. Wood, K.L., "Aides for Graphical/Numerical Analysis in Engineering Design," *AIAA Conference*, Wichita, KS, May 1985.

2. Wood, K.L., "Design of a Mars Rover," Second Annual Conference, *NASA/University Advanced Space Design Program*, Kennedy Space Center, June, 1986.

3. Wood, K.L., "The Ballistic Mars Hopper: An Alternative Mars Mobility Concept," AIAA/*SAE/ASME/ASEE 23rd Joint Propulsion Conference*, San Diego, CA, June, 1987.

4. Wood, K.L., "A Fuzzy Sets Approach to Computational Tools for Preliminary Engineering Design," ASME *Design Automation Conference*, Boston, MA, September, 1987.

5. Wood, K.L., "Computational Tools for Preliminary Engineering Design," *NSF Grantee Workshop on Design Theory and Methodology*, RPI, Troy, NY, June, 1988.

6. Wood, K.L., "A First Class of Computational Tools for Preliminary Engineering Design," *ASME Design Automation Conference*, Orlando, FL, September, 1988.

7. Wood, K.L, "Engineering Design Uncertainties," *NSF Engineering Design Research Conference*, Amherst, MA, June, 1989.

8. Wood, K.L., "A Method for the Representation and Manipulation of Uncertainties in Preliminary Engineering Design," Presented at The University of Texas, Carnegie Mellon University, Cornell University, Caltech, The University of Massachusetts, Virginia Polytechnic Institute, and Rutgers University, 1989.

9. Wood, K.L., "Comparing Fuzzy and Probability Calculus for Representing Imprecision in Preliminary Engineering Design," The First *International ASME Design Theory and Methodology Conference* (DTM '89), Montréal, Canada, September, 1989.

10. Wood, K.L., "A Formal Method for Representing Uncertainties in Engineering Design," *The First International Workshop on Formal Methods in Engineering Design, Manufacturing, and Assembly*, Colorado Springs, CO, January, 1990.

11. Wood, K.L., Invited Presentation: "Engineering Design: Computation and the Methodology Jungle," ASEE Annual Conference, Toronto, CA, June, 1990.

12. da Silva, R. and Wood, K.L., "Representing and Manipulating Interacting and Interfeature Relationships in Engineering Design for Manufacture," ASME *Design Automation Conference*, Chicago, IL, September, 1990.

13. Crawford, R.H. and Wood, K.L., "An Engineer's Introduction to Object-Oriented Programming," The University of Texas at Austin, Department of Mechanical Engineering, October, 1990.

14. da Silva, R. and Wood, K.L., "An Algebraic Approach to Geometric Query Processing in the Design and Manufacture of Discrete Parts," ACM *Symposium on Solid Model Foundations and CAD/CAM Applications*, Austin, TX, June, 1991.

15. Otto, K. and Wood, K.L., "Engineering Design Calculations Under Uncertainty," Requested Presentation at the Seventh *International Conference on Uncertainty in Artificial Intelligence*, UCLA, CA, July, 1991.

16. Wood, K.L., "Manufacturing in Mechanical Engineering, The University of Texas," Continuing Engineering Studies, College of Engineering, The Management Institute, October, 1991.

17. Wood, K.L., "The Urgency of Engineering Design," Tau Beta Pi National Honors Society, Texas Alpha Section, October, 1991.

18. Otto, K., Antonsson, E., and Wood, K.L., "Engineering Design Calculations with Fuzzy Parameters," *International Fuzzy Engineering Symposium*, Yokohama, Japan, November, 1991.

19. Wood, K.L., "Fractal-Based Representations of Tolerances in Engineering Design and Manufacturing," *The 1992 Design and Manufacturing Systems Conference,* Georgia Tech, Atlanta, GA, January, 1992.

20. Wood, K.L., "Journal and Thrust Bearings with Actively Deformable Surfaces," *DARPA PI Meeting*, Durham, NC, June, 1992.

21. Srinivasan, R.S. and Wood, K.L., "A Computation Investigation into the Structure of Form and Size Errors Based on Machining Mechanics," *1992 ASME Design Automation Conference*, September, 1992.

22. Wood, K.L., "Fractal-Based Geometric Tolerancing for Mechanical Design," *1992 ASME Design Theory and Methodology Conference,* Phoenix, AZ, September, 1992.

23. Crawford, R. and Wood, K.L., "An Engineering and Design Technology Curriculum for Elementary Grades," ASEE *Frontiers in Education (FIE)*, November, 1992.

24. Wood, K.L., "Rapid Prototyping: Techniques, Trends, and Research," UT Continuing Engineering Studies, The Management Institute, November, 1992.

25. Wood, K.L., "Fractal-Based Tolerancing: Theory, Dynamic Process Modeling, Test Bed Development, and Experiments," *The 1993 SME Design and Manufacturing Systems Conference,* University of North Carolina, January, 1993.

26. Wood, K.L., "Actively Deformable Surfaces: Journal and Thrust Bearings," *ARPA PI Meeting*, Pasadena, CA, January, 1993.

27. Ratliff, R. and Wood, K.L., "Modeling Vertical Centrifugal Pumps toward Failure Analysis and Redesign," *1993 International Conference on Bond Graph Modeling and Simulation*, January, 1993.

28. Cavin, R. and Wood, K.L., "An In-Circuit Test Fixture Inspection Tool Using Printed Circuit Board Artwork," *Surface Mount International Conference*, San Jose, CA, August 29 - September 1, 1993.

29. Wood, K.L., "An Object-Oriented Formalism for Geometric Reasoning in Engineering Design and Manufacturing," *ASME Design Automation Conference*, Albuquerque, NM, September, 1993.

30. Tumer, I. and Wood, K.L., "Fractal Precision Models of Lathe Turning Machines," *ASME Design Automation Conference,* Albuquerque, NM, September, 1993.

31. Srinivasan, R.S. and Wood, K.L., "Wavelet Transforms in Fractal-Based Form Tolerancing," *ASME Design Theory and Methodology Conference,* Albuquerque, NM, September, 1993.

32. Foong, C.S. and Wood, K.L., "Design Assessment of Micro-Electro-Mechanical Systems with Applications to a Microbiology Cell Injector," *ASME Winter Annual Meeting*, New Orleans, LA, November 29 - December 3, 1993.

33. Wood, K.L., "Fractal Representations of Machining Errors," *National Science Foundation Grantees Conference*, MIT, Boston, MA, January, 1994.

34. Wood, K.L., "Design for Manufacturing: Geometric Tolerancing and Manufacturing Process Selection," UT ME Graduate Symposium, February, 1994.

35. Wood, K.L. and Crawford, R., "Form Feature Recognition Using Base Volume Decomposition," *ASME DAC Conference*, September, 1994.

36. Wood, K.L., "Integrating Engineering Design and Manufacturing: Functional Tolerancing, Machine Precision, and Design Education," *Society of Manufacturing Engineers (SME), NSF Grantees Meeting*, University of California at San Diego, January, 1995.

37. Hearn, C. and Wood, K.L., "Smart Mechanical Bearings Using MEMS Technology," *ASME Tribology Symposium*, Houston, TX, January 29 - February 2, 1995.

38. Wood, K.L. and Crawford, R.H., "Perspectives of an Engineering Design Curriculum for the Elementary Grades," *UT Mechanical Engineering Alumni Reunion*, April, 1995.

39. Otto, K.N. and Wood, K.L., "Estimating Errors in Concept Selection," *ASME Design Theory and Methodology Conference*, Boston, MA, September, 1995.

40. Srinivasan, R.S. and Wood, K.L., "Functional Tolerancing: A Design for Manufacturing Methodology," *ASME Design Theory and Methodology Conference*, Boston, MA, September, 1995.

41. Crawford, R.H., Wood, K.L., and Fowler, M., "Elementary Education and Engineering Design: Concrete Experiences in Mathematics and Science," *ASME Design Theory and Methodology Conference*, Boston, MA, September, 1995.

42. Tumer, I.Y., Thompson, D.C., Crawford, R.H., and Wood, K.L., "Quantification of Part Surface Quality with Application to Selective Laser Sintering," *ICE*, France, May, 1996.

43. Tumer, I., Wood, K. L., and Busch-Vishniac, I., "Extraction of Fault Patterns on SLS Part Surfaces Using Karhunen-Loeve Transform," *Solid Freeform Fabrication Symposium*, The University of Texas, Austin, TX, August, 1996.

44. Norrell, J., Bergman, T., Wood, K.L., and Crawford, R.H., "Forced Convection in a Polymeric Powder," *Solid Freeform Fabrication Symposium*, The University of Texas, Austin, TX, August, 1996.

45. Otto, K.N. and Wood, K.L., "A Reverse Engineering and Redesign Methodology for Product Evolution," *ASME Design Theory and Methodology Conference*, Irvine, CA, August, 1996.

46. Lefever, D. and Wood, K.L., "Design for Assembly Techniques in Reverse Engineering and Redesign," *ASME Design Theory and Methodology Conference*, Irvine, CA, August, 1996.

47. Tumer, I., Srinivasan, R.S., and Wood, K.L., "Characteristic Measures for the Representation of Manufactured Surfaces," *ASME Conference on Design for Manufacturing*, Irvine, CA, August, 1996.

48. McAdams, D. and Wood, K.L., "The Effect of a Fractal Profile Tolerance on the Dynamic Performance of Cams," *ASME Conference on Design for Manufacturing*, Irvine, CA, August, 1996.

49. Wood, K.L, "An Overview of Functional Tolerancing, Manufacturing Precision, and Reverse Engineering in Product Design," *NSF Design and Manufacturing Grantees Meeting*, Seattle, WA, January, 1997.

50. Cho, U. and Wood, K. L., "Empirical Similitude Method for Functional Tests with Rapid Prototypes," *Solid Freeform Fabrication Symposium*, The University of Texas, Austin, TX, August, 1997.

51. Little, A. D. and Wood, K. L., "Functional Analysis: A Fundamental Empirical Study for Reverse Engineering, Benchmarking, and Redesign," *ASME Design Theory and Methodology Conference*, Sacramento, CA, September, 1997.

52. Tumer, I. Y., Wood, K. L., and Busch-Vishniac, I. J., "Improving Manufacturing Precision Using the Karhunen-Loeve Transform," *ASME Design for Manufacturing Conference*, Sacramento, CA, September, 1997.

53. Tumer, I. Y., Wood, K. L., and Busch-Vishniac, I. J., "Monitoring Fault Conditions During Manufacturing Using the Karhunen-Loeve Transform," *ASME Sixth Biennial Conference on Mechanical Vibration and Noise*, Sacramento, CA, September, 1997.

54. Norrell, J. L., Crawford, R. H., and Wood, K. L., "Thermal Issues in the Design of a Rapid Prototyping Machine," *ASME Design for Manufacturing Conference*, Sacramento, CA, September, 1997.

55. Wood, K.L., "An Overview of Tolerance Design for Function and Manufacturing Precision in Product Design," *Proceedings of the 1998 NSF Design and Manufacturing Grantees Meeting*, Monterrey, Mexico, January, 1998.

56. Cho, U., Wood, K.L., and Crawford, R.H., "On-Line Functional Testing with Rapid Prototypes," *European Conference on Rapid Prototyping*, July, 1998.

57. Jensen, D. D., Murphy, M. D., and Wood, K. L., "Evaluation and Refinement of a Restructured Introduction to Engineering Design Course Using Student Surveys and MBTI Data," *ASEE Annual Conference*, Seattle, WA, June, 1998.

58. Wood, K. L., Otto, K. N., Bezdek, J., Murphy, M. D., and Jensen, D. D., "Building Better Mouse Trap Builders," *ASEE Annual Conference*, Seattle, WA, June, 1998.

59. Otto, K. N. and Wood, K. L., "Customer Integrated Systematic Design," *3rd World Conference on Integrated Design and Process Technology*, Berlin, Germany, July, 1998.

60. Stone, R. B., Wood, K. L., and Crawford, R. H., "A Heuristic Method to Identify Modules from a Functional Description of a Product," *ASME Design Theory and Methodology Conference*, Atlanta, GA, September, 1998.

61. McAdams, D. A., Stone, R. B., and Wood, K. L., "Understanding Product Similarity Customer Needs," *ASME Design Theory and Methodology Conference*, Atlanta, GA, September, 1998.

62. Tumer, I. Y., Wood, K. L., Busch-Vishniac, I. J., "A Methodology for Karhunen-Loeve-Based Condition Monitoring in Manufacturing," *ASME Design for Manufacturing Conference*, Atlanta, GA, September, 1998.

63. Cho, U., Wood, K. L., and Crawford, R. H., "A Novel Empirical Similarity Method for Reliable Product Testing with Rapid Prototypes," *ASME Design Automation Conference*, Atlanta, GA, September, 1998.

64. Norrell, J., Wood, K. L., and Crawford, R. H., "Thermal Effects of In-Bed Rapid Prototyping Metastructures," *Solid Freeform Fabrication Symposium*, August, 1999.

65. Cho, U., Wood, K.L., and Crawford, R.H., "Agile Product Testing With Constrained Prototypes," *Solid Freeform Fabrication Symposium*, August, 1999.

66. Stone, R. B., Wood, K.L., and Crawford, R.H., "Product Architecture Development with Quantitative Functional Analysis," *ASME Design Theory and Methodology Conference*, Las Vegas, NV, September 1999. (Best Paper Award)

67. Stone, R.B. and Wood, K.L., "Development of a Functional Basis for Design," *ASME Design Theory and Methodology Conference*, Las Vegas, NV, September 1999.

68. McAdams, D. A. and Wood, K.L., "Methods and Principles for Concurrent Functional Tolerance Design," *ASME Design for Manufacturing Conference*, Las Vegas, NV, September 1999.

69. Cho, U., Wood, K.L., and Crawford, R.H., "System-Level Functional Testing for Scaled Prototypes with Configurational Distortions," *ASME Design Automation Conference*, Las Vegas, NV, September 1999.

70. Cho, U., Wood, K.L., and Crawford, R.H., "Error Measures for Functional Product Testing," *ASME Design for Manufacturing Conference*, Las Vegas, NV, September 1999.

71. Jepson, J., Beaman, J., and Wood, K. L., "Multi-Material Selective Laser Sintering: Empirical Studies and Hardware Development," *NSF Grantees Conference*, Calgary, Canada, January 2000.

72. Wood, J. J. and Wood, K.L., "The Tinkerer's Pendulum for Machine System's Education: Creating a Basic Hands-On Environment with Mechanical Breadboards," *ASEE Annual Conference*, Session 2566, St. Louis, MO, June 2000.

73. McAdams, D. and Wood, K. L., "Theoretical Foundations for Tuning Parameter Tolerance Design," *ASME Design for Manufacturing Conference*, Baltimore, MD, September 2000.

74. McAdams, D. and Wood, K. L., "Quantitative Measures for Design by Analogy," *ASME Design Theory and Methodology Conference*, Baltimore, MD, September 2000, nominated for the ASME DTM Best Paper Award.

75. Kurfman, M., Stone, R. Van Wie, M., Wood, K. L., and, Otto, K. N. "Theoretical Underpinnings of Functional Modeling: Preliminary Experimental Studies," *ASME Design Theory and Methodology Conference*, Baltimore, MD, September 2000.

76. Jensen, D.L., Greer, J.L., Wood, K.L., Nowack, M.L., 2000, "Force Flow Analysis: Opportunities for Creative Component Combination," 2000 ASME International Mechanical Engineering Congress and Exposition, November 5-10, Orlando, Florida.

77. Dutson, A., Wood, K., Beaman, J., and Crawford, R., "An Approach to Functional Testing with SLS Parts," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

78. Ramos, J., Krishnan, S., Wood, K., Bourell, D., Beaman, J., "Surface Roughness Enhancement of Indirect-SLS Metal Parts by Laser Surface Polishing," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

79. Jackson, B. Wood, K., and Beaman, J., "Novel Fabrication of Sand Casting Cores with Discrete Multiple Material Selective Laser Sintering," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

80. Rajan, J., Wood, K., and Malkovich, N., "Experimental Study of Selective Laser Sintering of Parmax," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

81. Shimek, M., Patwardhan, N., Wood, K., Beaman, J., and Crawford, R. "Cybernetic Physical Sensor Embedding for Selective Laser Sintering," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

82. Ruizpalacios, R., King, C., Wood, K., Beaman, J., and Bourell, D., "Investigative Study of Selective Laser Sintering of Silicon Dioxide-Based Powders," *Solid Freeform Fabrication Symposium*, Austin, TX, August 6-8, 2001.

83. Baroud, C., Busch-Vishniac, I., and Wood, K., "Smart Hydrodynamic Bearings Using Surface Micro Variations," *ASME DETC Conference*, Sept. 9-12, 2001, Pittsburgh, PA.

84. Kurfman, M. Stone, R., Ragan, J., and Wood, K., "Functional Modeling Experimental Studies," *ASME Design Theory and Methodology Conference*, Sept. 9-12, 2001, Pittsburgh, PA.

85. Van Wie, M., Greer, J., Campbell, M., Stone, R., and Wood, K., "Interfaces and Product Architecture," *ASME Design Theory and Methodology Conference*, Sept. 9-12, 2001, Pittsburgh, PA.

86. Hitz, J., Stone, R., McAdams, D., Szykman, S., and Wood, K., "Evolving a Functional Basis for Engineering Design," *ASME Design Theory and Methodology Conference*, Sept. 9-12, 2001, Pittsburgh, PA.

87. Green, M., Dutson, A., Wood, K.L., Stone, R., and McAdams, D., "Integrating Service-Oriented Design Projects in the Engineering Curriculum," *Proceedings of the 2002 American Society for Engineering Education Annual Conference & Exposition*, June 2002

88. Ahn, S., Murphy, J., Ramos, J. A., Wood, K. L., and Beaman, J. J., "Real-Time Measurement of Temperature for Control of Laser Surface Modification Process," *Proceedings of the Solid Freeform Fabrication Symposium*, Austin, TX, August 5-7, 2002.

89. Ramos, J. A., Murphy, J., Lappo, K., Wood, K. L., Bourell, D. L., and Beaman, J. J., "Single-Layer Deposits of Nickel Base Superalloy by Means of Selective Laser Melting," *Proceedings of the Solid Freeform Fabrication Symposium*, Austin, TX, August 5-7, 2002.

90. Dutson, A. Wood, K. L., Crawford, R., Beaman, J. J., and Bourell, D. L., "Advances in Functional Testing with SFF Parts," *Proceedings of the Solid Freeform Fabrication Symposium*, Austin, TX, August 5-7, 2002.

91. Murphy, J., Lappo, K., Wood, K. L., and Beaman, J. J., "A Statistical Model of Laser Surface Finishing Using Design of Experiments and ANOVA," *Proceedings of the Solid Freeform Fabrication Symposium*, Austin, TX, August 5-7, 2002.

92. Wood, J., Wood, K. L., and Troxell, W., "Empirical Analysis Using Advanced Similarity Methods," *ASME Design Automation Conference,* September 29 – October 2, 2002, Montreal, Canada.

93. Greer, J., Wood, J., Jensen, D., and Wood, K. L., "Guidelines for Product Evolution Using Effort Flow Analysis: Results of an Empirical Study," *ASME Design Theory and Methodology Conference,* September 29 – October 2, 2002, Montreal, Canada.

94. Moe, R. and Wood, K. L., "Prototype Partitioning Using Requirement Flexibility," *ASME Design Theory and Methodology Conference,* September 29 – October 2, 2002, Montreal, Canada.

95. Lappo, K., Ramos, J. A., Murphy, J., Wood, K. L., Bourell, D. L., and Beaman, J. J., "Surface Roughness Determination of As-Received Indirect-SLS Parts by Means of Line Profilometry," *TMS Fall Conference,* Columbus, Ohio, Spring 2002.

96. Green, M. and Wood, K. L., "Publishing Engineering Research on Appropriate Technologies," *Development by Design - DYD02 Conference*, Bangalore, December 1-2, 2002.

97. Ruizpalacios, R., Wood, K. L., and Beaman, J. J., "Direct Write of Sol-Gel Parts," *National Science Foundation Design, Service, and Manufacturing and Industrial Innovation Grantees and Research Conference*, 2003.

98. Dutson, A., Wood, K. L., Beaman, J. J., Crawford, R. H., and Bourell, D. L., "CyPhy Process," *National Science Foundation Design, Service, and Manufacturing and Industrial Innovation Grantees and Research Conference*, 2003.

99. Dutson, A., Green, M., Jensen, D., and Wood, K. L., "Active-Learning with Engineering Mechanics: A Building-Block for Design," *ASEE Annual Conference*, June 2003.

100. Jensen, D. and Wood, K. L., "Hands-On Devices to Augment Multimedia for Mechanics of Materials," *ASEE Annual Conference*, June 2003.

101. Rajan, P., Van Wie, M., Otto, K., and Wood, K. L., "Design for Flexibility – Measures and Guidelines," *ICED (International Conference on Engineering Design)*, August, 2003.

102. Ruizpalacios, R., Kyogoku, H., Sriram, V., Wood, K. L., Beaman, J. J., Bourell, D., and Crawford, R., "Laser Direct Write of Nanoporous Optical Coatings: Preliminary Results," *Solid Freeform Fabrication Symposium*, Austin, TX, August 4-6, 2003.

103. Lappo, K., Wood, K. L., Bourell, D., and Beaman, J. J., "Discrete Multiple Material Selective Laser Sintering (M^2SLS): Nozzle Design for Powder Delivery," *Solid Freeform Fabrication Symposium*, Austin, TX, August 4-6, 2003.

104. Lappo, K., Jackson, B., Wood, K. L., Bourell, D., and Beaman, J. J., "Discrete Multiple Material Selective Laser Sintering (M^2SLS): Experimental Study of Part Processing," *Solid Freeform Fabrication Symposium*, Austin, TX, August 4-6, 2003.

105. Sriram, V., Wood, K. L., Bourell, D., and Beaman, J. J., "Selective Laser Sintering of DuraForm Polyamide with Micro-Scale Features," *Solid Freeform Fabrication Symposium*, Austin, TX, August 4-6, 2003.

106. Mignatti, M. A., Campbell, M. I., Ruizpalacious, R., and Wood, K. L., "Characterization of a Novel Low-Cost, Direct-Write Waveguide," *Solid Freeform Fabrication Symposium*, Austin, TX, August 4-6, 2003.

107. Greer, J., Stock, M., Stone, R., and Wood, K. L., "Enumerating the Component Space: First Steps Toward a Design Naming Convention for Mechanical Parts," *ASME Design Theory and Methodology Conference,* September 2-6, 2003, Chicago, Illinois.

108. Van Wie, M., Rajan, P., Wood, K. L., and Campbell, M., "Representing Product Architecture," *ASME Design Theory and Methodology Conference,* September 2-6, 2003, Chicago, Illinois.

109. Shimek, M., K. Lappo, K. Wood, R. Crawford, and D.L. Bourell, Seminar Speaker, Instrumented Prototypes, Ibaraki University Lecture Series, Hitachi, Japan, October 10, 2003.

110. Lappo, K., B. Jackson, K. Wood, J.J. Beaman, and D.L. Bourell, Seminar Speaker, Discrete Multiple Material Selective Laser Sintering (M2SLS): Experimental Study of Part Processing, Ibaraki University Lecture Series, Hitachi, Japan, October 10, 2003.

111. Lappo, K., B. Jackson, K. Wood, J.J. Beaman, and D.L. Bourell, Seminar Speaker, Discrete Multiple Material Selective Laser Sintering (M2SLS): Nozzle Design for Powder Delivery, Ibaraki University Lecture Series, Hitachi, Japan, October 10, 2003.

112. Tadepalli, S., Doud, B., Wood, K. L., and Beaman, J. J., "Advanced Mathematical Methods in Correlating Product Behavior: Technique of Conformal Mapping," *National Science Foundation Design, Service, and Manufacturing and Industrial Innovation Grantees and Research Conference*, Dallas, TX, January 2004.

113. Green, M., Wood, K.L., et al., "Service-Learning Approaches to International Humanitarian Design Projects: Assessment of Spiritual Impact," *Christian Engineering Education Conference, May 2004.*

114. Jensen, D., Wood, J., and Wood, K. L., "Design of Hands-on Experiences to Optimize Learning through Correlation with Learning Styles and Pedagogical Theory," *ASEE Annual Conference*, June 2004.

115. Jensen, D., Wood, J., and Wood, K. L., "Enhancing Machine Design Courses through the Use of a Multimedia-Based Review of Mechanics of Materials," *ASEE Annual Conference*, June, 2004.

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240. Liu, J., Moreno, D., Jensen, D., Ruth, J., Mathur, A., and Wood, K. L., "Innovative Exploration into Active Learning and Design-based Learning Approaches for Software Engineering," *ASEE Annual Conference*, Atlanta, GA, 2013.

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251. Moreno, D. P., Yang, M., and Wood, K. L., "Design Creativity for Every Design Problem: A Design-by-Analogy Approach," *Design Computing and Cognition (DCC'14)*, J. S. Gero, ed., University College London, London, UK, June 21-25, 2014.

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260. Huang, S., Wood, K. L., Yuen, C., Otto, K., Hölttä-Otto, K., Gu, Y., Ahipasaoglu, S., Benjaafar, S., Tushar, W., Withanage, C., Wang, T., Rahaman Molla, A., Ashok, R., and Ying, S., "Innovations in the Design of Smart Grid Systems for Future Cities," *1st Asia-Pacific Conference on Complex Systems Design & Management, CSD&M Asia 2014*, December 10-12, 2014, Singapore, accepted for presentation.

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PATENTS, INVENTION DISCLOSURES, AND COPYRIGHTED SOFTWARE:

Cavin, R., Bowen, S.O., Wood, K.L., Crawford, R.H., Ratliff, R., and Sumrell, C., "A Probe Accuracy Inspection Tool for ICT Fixtures Using PCB Artwork," Disclosure No. 94A 60656 / AT8930378, *IBM Invention Disclosure*, 1994. (http://www.delphion.com/)

Busch-Vishniac, I., Neikirk, D., Weldon, W., Wood, K.L., et al., "Precise Surface Features for Control of Fluid Flow," UT Invention Disclosure, 1996.

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Chen, S., Murphy, J., Bourell, D., Wood, K.L., Beaman, J., and Crawford, R., "An Innovative Process for Layered-Based Fabrication of Fuel Cell Plates," UT Invention Disclosure, 2005.

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Koraishy, B., Wood, K.L., Meyers, J., and Manthiram, R., "Continuous Manufacturing Process for Polymer Electrolyte Membrane (PEMFC) and Direct Methanol Fuel Cell (DMFC) Membrane Electrode Assembly (MEA)," UT Invention Disclosure, 2011.

RESEARCH TOPICS:

The general theme of our research is to contribute to the fields of design theory and methodology, design for manufacture (tolerance design and automation techniques), applied mechanics in the design of mechanical components and assemblies, rapid prototyping and manufacturing, product development, and the design of microelectromechanical systems. In particular, our work emphasizes mechanical engineering design and such relevant problems as: representing and manipulating design uncertainties; determining appropriate strategies for solving the "inverse (or reverse) engineering problem;" developing formal methods for transforming iterative design knowledge to physical devices; developing and applying algebras, multi-valued logic, and languages in order to map original design concepts to parametric or qualitative models; performing industrial and empirical design studies of product development; deriving fundamental design principles of design flexibility and design transformers from empirical data; performing fundamental studies of cognitive processes for concept generation and design-by-analogy; and designing micro-deformable surfaces for journal and thrust bearings. The current and near-future objectives of our research is to develop design strategies, representations, and languages which will result in more comprehensive design tools, and design teaching aids at both the college and pre-college levels.

FUNDED GRANTS AND CONTRACTS:

Bureau of Engineering Research, "Engineering Design and Manufacturing Research Laboratory," $75,000, 1989.

UT University Research Institute, "A Representation Strategy for the Inverse Engineering Problem," $3,500, 1990.

UT URI, "Computer Understanding of 3D CAD Models," $10,000, 1990.

National Science Foundation, "NSF Design and Manufacturing Systems Grantees Conference," with K. Marshek, J. Beaman, and R. Crawford, $58,000, 1990-1991.

Challenge for Excellence Research Supplement, The University of Texas, "Reverse Engineering," with R. Crawford and B. Fernandez, $13,000, 1991-1992.

Oryx Energy Company, "Elastomer Design for Energy Industries: Applications to Centrifugal Pumps," $5,600, 1992-1993.

National Science Foundation, "A Fractal Based Approach for Tolerance Technology in Engineering Design and Manufacturing," $58,276, 1991-1994.

Texas Instruments Inc., "Intermediate Geometry in Design and Manufacturing," $15,000, 1992-1993.

NSF REU Program, "Fractal-Based Tolerancing in Engineering: Applications to Machining Mechanics and Computational Geometry," $10,000, 1992.

DARPA BAA 92-02, ESTO, Microdynamical Systems, "Journal and Thrust Bearings with Actively Deformable Surfaces," with I. Busch-Vishniac, D. Neikirk, and W. Weldon, $1,169,000, 1992-1996.

Sustaining Membership, NASA/USRA University Advanced Design Program, "Design Methodology for Space Engineering," with R. Crawford and S. Nichols, $51,000, 1992-1995.

Texas Higher Education Coordinating Board, The Eisenhower Foundation, "Teacher Enhancement: Design Technology and Engineering for America's Children (DTEACh)," with R. Crawford, $64,612, 1992-1993.

IBM Austin, "Design for Manufacturing, Service, and Test," $83,000, 1992-1993.

National Science Foundation Young Investigator Program, "Formal Tolerance and Set-Based Methods in Engineering Design and Manufacturing," $312,500, 1992-1998.

Ford Motor Co., "Direct Engineering of Automobile Drive-Train Fixtures," with R.H. Crawford, $69,000, 1993-1995.

DTM Corporation, "Selective Laser Sintering of Metallic Materials," with J.J. Beaman, H. Marcus, J. Barlow, R. Crawford, and D. Bourell, $258,000, 1993.

Texas Instruments Inc., "Design Retrieval: Intermediate Geometry Applications in Design and Manufacturing," with R.H. Crawford, $20,000, 1994.

Texas Advanced Technology Program-R, "Precision and Repeatability of SLS," with T. Bergman, $140,294, 1994-1996.

UT College of Engineering, Academic Development Funds, "New Graduate Course in ME — Product Design, Development, and Prototyping," with R. Crawford, $2,000, 1993.

W.M. Keck Foundation, "Undergraduate Dissection Laboratories, Graduate Prototyping, and a Design Program for Elementary Education," $10,000, 1994-1995.

Office of Naval Research, "Selective Laser Sintering of Metal Powders with Low Cost HIP Post-Processing," with J. Beaman, D. Bourell, J. Barlow, H. Marcus, and R. Crawford, $100,000, 1994-1995.

Texas Instruments Inc., "Design with Incomplete Geometry," with R.H. Crawford, $20,000, 1995.

American Society of Engineering Education, "Fred Merryfield Design Grant," $500, 1995.

NSF-Grant Opportunities for Academic Liaison with Industry Initiative, "Development of a Multi-Material SLS Process," DMI-9622287, with D.L. Bourell and J. J. Beaman, $309,854 plus $25,000 matching from College of Engineering and $25,000 Industrial Support from Motorola, 1996-2000.

Office of Naval Research, "AASERT - Low Cost Metal Processing Using SLS/HIP — Graduate Students," $182,075, with J. Beaman, 1996-1997.

National Science Foundation, CISE Research Instrumentation Program, "Robotics Equipment for Research on Assistive Intelligence," with Benjamin Kuipers and R. Crawford, $72,000, 1997-1998.

Adorno/Rogers Technology, Inc., "Design of Modular Wheelchairs," $20,000, 1997-1998.

United States Air Force Academy, "Engineering Design Education and Research," $80,038, 1997-1998.

Design Edge, Co., "Product Design," $15,000, 1997-1998.

Fluor Daniel Grant, "Product Development and Prototyping Laboratory," with P. Schmidt and R. Crawford, $4,000, 1997-98.

Fluor Daniel Grant, "RC Cars Mechanical Breadboards for Machine Design Education," $4,500, 1998-99.

National Instruments, "Teaching Automation and Control in Elementary Grades: DTEACh and ROBOLAB," with R. Crawford, M. Fowler, and J. Jones, $26,000, 1998-99.

National Science Foundation, "CyPhy Process for Rapid Product Design and Evaluation," with J. Beaman and R. Crawford, $335,026, 8/2000-9/2003.

National Science Foundation, "Collaborative Research: Architecting Design Repositories - Product Modeling, Exchange, and Reuse," with R. Stone (Univ. Missouri at Rolla) and Simon Szykman (NIST), $400,000, 9/2000-8/2003.

Ford Motor Company, Center of Excellence, "DTEACh," with R. Crawford, $10,000, 1/2000-12/2000.

Ford Motor Company, Center of Excellence, "EDI," with R. Crawford, $5,000, 1/2000-12/2000.

National Instruments, "Teaching Automation and Control in Elementary Grades: DTEACh and ROBOLAB," with R. Crawford, M. Fowler, and J. Jones, $20,000, 2000-2001.

Ford Motor Company, Center of Excellence, "Faculty Development Grant," $5,000, 2000.

Ford Motor Company, Center of Excellence, "Equipment and Facilities Grant," $20,000, 2000.

Ford Motor Company, Center of Excellence, "DTEACh," with R. Crawford, $10,000, 1/2001-12/2001.

Fluor Daniel Grant, "RoboLab Machine Design Education," $4,500, 2000-01.

Karta Technology, Inc., "Development of Laser Process for Application of Oxidant Resistant Coatings to Carbon-Carbon Composites," with D. Bourell and J. Beaman, $120,000, 12/2000-12/2002.

DOD ONR, "Surface Engineering for SFF Processes," with D. Bourell and J. Beaman, $333,955, 03/2000-02/2003.

Rolls Royce, Inc., "Feasibility: Demonstration of Expitaxial Growth in Multi-Layer Deposits of Nickel Base Superalloy," with D. Bourell and J. Beaman, $20,000, 09/2001-02/2002.

Ford Motor Company, Center of Excellence, "Advancements in the UT-ME Undergraduate Design Curriculum," with R. Crawford, $30,000, 6/2001-12/2001.

Schlumberger, Inc., "Rapid Engineering Design: Solid Freeform Fabrication," $25,000, 6/2001-8/2002.

National Instruments, "Integrating Automation and Control in Elementary Grades: DTEACh and ROBOLAB," with R. Crawford and M. Fowler, $20,000, 2001-2002.

National Science Foundation, "SFF Symposium," with D. Bourell, $5,500, 2001-2002.

Texas Higher Education Coordinating Board, Advanced Technology Program, "CyPhy: Direct Instrumentation of Product Prototypes," $150,000, with M. Campbell, 2001-2003.

Texas Higher Education Coordinating Board, Technology Development and Transfer, "Selective Laser Sintered and Silicon-Infiltrated Silicon Carbide Boats," $200,000, with D. Bourell, 2001-2003.

National Science Foundation, "Direct Write of Novel Optical Components," with J. Beaman, M. Campbell, R. Crawford, and D. Bourell, $350,000, 2002-2005.

Karta Technology, Inc., "Laser Surface Modification for Improving Corrosion Resistance of Steels Used in Coal-Fired Power Systems," with D. Bourell and J. Beaman, $8,000, 01/2002-03/2002.

Dane E. Bailey (Individual), "Three Month Feasibility Study: Laser Welding of Silicon," with D. Bourell and J. Beaman, $15,256, 01/2002-12/2002.

National Instruments, "Integrating Automation and Control in Elementary Grades: DTEACh and ROBOLAB," with R. Crawford and M. Fowler, $24,000, 2002-2003.

DOD Navy, "Solid Freeform Fabrication Symposium 2002," with D. Bourell and J. Beaman, $5,940, 06/2002-12/2002.

National Science Foundation, "Innovations in Functional Testing: Empirical Similitude," $200,000, 2003-2006.

Office of Naval Research, "Laser-Based Fuel Cell Manufacturing for Thermal Management," $372,000, 2003-2006.

National Instruments, "Integrating Automation and Control in Elementary in Grades K-12: DTEACh and ROBOLAB," with R. Crawford and M. Fowler, $25,000, 2003-2004.

3M Corporation, "Innovations in Manufacturing," Gift Grant, with J. Beaman, $10,000, 2003-2004.

UT Informational Gateway, "DTEACh: Mathematics for Grades 8-12," with R. Crawford, $18,900, 2003-2004.

National Instruments, "Integrating Automation and Control in Elementary in Grades K-12: DTEACh and ROBOLAB," with R. Crawford and M. Fowler, $29,000, 2004-2005.

National Science Foundation, "WORKSHOP: Solid Freeform Fabrication (SFF) Symposium," with D. Bourell, $5,500, 2004-2005.

National Science Foundation, "An Active Learning Approach to Mechanics of Materials Using Hands-On Activities, Written Content, and Multi-Media Courseware," CCLI Program, $277,100, 2005-2007, with the United States Air Force Academy.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, "Transformation & Reconfiguration of a System of Integrated Systems (Micro Aerial Vehicles)," with D. Jensen (United States Air Force Academy), $85,000, 2005-2006.

North Coast Medical (NCM), Inc., "Redesign of Automatic Feeders for People with Disabilities," $7,000, Equipment Donation, 2005.

National Instruments, "Teaching Automation and Control in Grades K-12: 2005 ROBOLAB DTEACh Summer Institutes," with R. Crawford, $29,000, 2005-2006.

Schlumberger, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $30,000, 2005-2006.

UT COE, Academic Development Fund, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $20,000, 2005-2006.

National Instruments, "Beacon of Light Project: DTEACh K-12," $65,000, with R. Crawford, 2006.

JHE, Inc., "Advances in Scaled Product Testing," $30,000, 2006-2009.

National Science Foundation, DMI, "Fundamental Studies of Generating Concepts through Design-by-Analogy," with Art Markman, $370,000, 2006-2009.

United States Air Force, IITA, "Development, Implementation and Assessment of a Suite of Multimedia Courseware for the Enhancement of Engineering Mechanics Courses," $9,455, with D. Jensen (USAFA), 2006.

National Science Foundation, "SFF Symposium Student Support 2006," with D. Bourell, $9,900, 2006.

National Science Foundation, "REU: Innovations in Functional Testing: Empirical Similitude," $10,000, 2006, with J. Beaman.

DOD Office of Naval Research, "Solid Freeform Fabrication 2006," with D. Bourell, $6,000, 2006.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, "Implementation of Transformational Design Methodology and Revolutionary Energy Systems Work," with D. Jensen (United States Air Force Academy), $65,000, 2006-2007.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, POC: Chris Perry, "Conceptual Design and Prototyping of a Towed MAV System," with D. Jensen (United States Air Force Academy), $25,000, 2006-2007.

National Science Foundation, "REU: Fundamental Studies of Generating Concepts through Design-by-Analogy," $10,000, Summer 2006, with A. Markman.

National Science Foundation, "Collaborative Research: Innovations in Product Flexibility," with C. Seepersad, D. Jensen, and Marty Wortman, $234,503, 2006-2009.

National Instruments, "Teaching Automation and Control in Grades K-12: 2006 ROBOLAB DTEACh Summer Institutes," with R. Crawford, $26,500, 2006-2007.

National Science Foundation, "REU: Fundamental Studies of Generating Concepts through Design-by-Analogy," $12,000, 2006-2007, with A. Markman.

National Science Foundation, "REU: Product Flexibility Studies," $12,000, 2006-2007, with C. Seepersad.

Texas Education Agency (TEA), "Regional T-STEM [Texas Science, Technology, Engineering and Mathematics] Center: Transformation 2013," with Educational Service Centers for Regions XIII (Austin) and XX (San Antonio), San Antonio and Taylor ISDs, National Instruments and IBM, and the Boston Museum of Science, $56,000, 2006-2007.

Schlumberger, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $30,000, 2006-2007.

Boeing Corporation, "DTEACh: Advancements in Hands-On Design, Mathematics and Science," with R. Crawford, $30,000, 2006-2007.

IC^2, National Science Foundation, AFRL, "A Workshop on Innovation: Frontier Tools," with Art Markman, $25,000, 2006-2007.

DOD-Navy, "Solid Freeform Fabrication Symposium," with D. Bourell, $11,000, 2006-2007.

CREO Consulting, "Transformer Design Theory," $2,000, Spring 2007.

AFRL, "Commander's Challenge," $20,000, with D. Jensen, 2007.

ONR, MURI Program, "Materials and Manufacturing Science and Engineering of Direct Methanol Fuel Cells," Topic #11, *Processing and Production Science for Next Generation Fuel Cells*, with A. Manthiram (PI), J. Beaman, D. Bourell, C. Bielawski, V. Ganesan, L. Loo, J. Meyers, F. Prinz, and A. Bard, $5,800,000, 2007-2012.

National Science Foundation, BCS - Perception, Action & Cognition Division, "The Science of Innovation: Tools and Methods," with Art Markman, $15,000, 2006-2007.

CREO Consulting, "Transformer Design Theory," $10,000, Spring 2007.

National Instruments, "Teaching Automation and Control in Grades K-12: 2007 ROBOLAB DTEACh Summer Institutes," with R. Crawford, $26,500, 2007-2008.

National Science Foundation, "Discussion of Individual and Team-Based Innovation," $25,820, with J. Cagan, 2007-2008.

Kirtland AFRL, "UT and TAMU Lone Star Challenge," $71,325, 2007-2008.

Texas Education Agency (TEA), "Regional T-STEM [Texas Science, Technology, Engineering and Mathematics] Center: Transformation 2013," with Educational Service Centers for Regions XIII (Austin) and XX (San Antonio), San Antonio and Taylor ISDs, National Instruments and IBM, and the Boston Museum of Science, $55,000, 2007-2008.

National Instruments, "Teaching Automation and Control in Grades K-12: 2008 ROBOLAB DTEACh Summer Institutes," with R. Crawford, $24,000, 2008-2009.

Schlumberger, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $30,000, 2007-2008.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, "Transformational Design Methodology: Energy Scavenging," with D. Jensen (United States Air Force Academy), $65,000, 2007-2008.

Air Force Research Laboratories (AFRL), RW, POC: Mike Miller, "Transformational Design Approaches: Applications to System of Systems and Small Scale MAVs," with D. Jensen (United States Air Force Academy), $25,000, 2007-2008.

AFRL, "Commander's Challenge: Tag-n-Track," $28,000, with D. Jensen, 2008.

Kirtland AFRL, "2008-2009 UT and TAMU Lone Star Challenge," $83,000, 2008-2009.

Schlumberger, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $30,000, 2008-2009.

NSF, CCLI, "Correlating Student Demographic Data and Assessment Measures to Enhance Engineering Education Equitably Across Different Student Groups," $15,000, with D. Jensen and A. Brown, 2008-2009.

Boeing Corporation, "DTEACh: Advancements in Hands-On Design, Mathematics and Science," with R. Crawford, $5,000, 2008-2009.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, "Transformational Design Methodology: Energy Scavenging," with D. Jensen (United States Air Force Academy), $65,000, 2008-2009.

Air Force Research Laboratories (AFRL), RW, POC: Mikel Miller, "Transformational Design Approaches: Applications to System of Systems and Small Scale MAVs," with D. Jensen (United States Air Force Academy), $25,000, 2008-2009.

AFRL, "Commander's Challenge: Deep Valley ISR," $28,000, with D. Jensen, 2009.

CREO Consulting, "Transformer Design Theory," $5,000, Spring 2009.

Texas Education Agency (TEA), "Regional T-STEM [Texas Science, Technology, Engineering and Mathematics] Center: Transformation 2013," with Educational Service Centers for Regions XIII (Austin) and XX (San Antonio), San Antonio and Taylor ISDs, National Instruments and IBM, and the Boston Museum of Science, $20,000, 2008-2009.

NIST-TIP, "Development of Rapid, Reliable, and Economical Methods for Inspection and Monitoring of Highway Bridges," $7,200,000, with S. Wood, D. Neikirk, R. Crawford, *et al.*, 2009-2014.

National Science Foundation, "Collaborative Research - The Verrocchio Project: Advanced Analogical Search with Integrated Function and Form," EngrDesign Program, $390,000, with J. Cagan (CMU), and C. Schunn (UPitt), 2009-2012.

Schlumberger, "Innovations in Engineering Design Education: A Two Semester Interdisciplinary Capstone Design Sequence," with R. Crawford, J. Beaman, and A. Ambler, $30,000, 2009-2010.

Kirtland AFRL, "2009-2010 UT and TAMU Lone Star Challenge," $84,000, 2009-2010.

AFRL, "Commander's Challenge: FOB and COB Protection," $28,000, with D. Jensen, 2010.

Air Force Research Laboratories (AFRL), Eglin Air Force Base, "Transformational Design Methodology: Anti-MAV," with D. Jensen (United States Air Force Academy), $65,000, 2009-2010.

Air Force Research Laboratories (AFRL), RW, POC: Mike Miller, "Transformational Design Approaches: Applications to System of Systems and Small Scale MAVs," with D. Jensen (United States Air Force Academy), $25,000, 2009-2010.

Various Independent School Districts, "DTEACh Institute," with R. Crawford, $12,000, 2010.

Air Force Research Laboratories (AFRL), Wright-Pat, "Ornithopter Testbeds," with D. Jensen (United States Air Force Academy), $50,000, 2008-2010.

Air Force Research Laboratories (AFRL), Tyndall, "Cave Robots," with D. Jensen (United States Air Force Academy), $25,000, 2009-2010.

CREO Consulting, "Contemporary Innovation Methods and Teaching," $5,000, Summer 2010.

AFRL Directorate, "2010-2011 UT and TAMU Lone Star Challenge," $50,000, 2010-2011.

National Science Foundation, "Collaborative Research – Learning Modules in FEA," CCLI Program, Phase 2, $600,000, with A. Brown (UPacific), D. Jensen (United States Air Force Academy), and J. Rencis (U. Arkansas), 2010-2013.

National Science Foundation, "REU, The Verrocchio Project," $12,000, Summer 2011.

Various Independent School Districts, "DTEACh Institute," with R. Crawford, $8,000, 2011.

Afren, Ltd., "Design Challenge for Developing Communities," $10,500, 2011-2012.

United States Air Force Academy, "Research and Development of Advanced Engineering Design Methods," $582,000, with R. Crawford, 2011-2014.

Ministry of Education (MOE), SUTD SGA, Design Research, S$200k, 2011-2013.

Ministry of Education (MOE), SUTD-MIT International Design Centre (ICD), co-Director-Singapore, $100M, 2010-2020.

Ministry of Defense (MinDef) / DSTR, Temasek Laboratory, SUTD, STARS (Systems Technology for Autonomous Reconnaissance and Surveillance), S$4.84M, with Kevin Otto, et al., 2013-2016.

Energy Market Authority (EMA), EIRP, NRF, "Demand Focused Smart Energy Management in End User Environments for Sustainable Cities," S$2.4M, with S. Benjaafar, Yuen Chau, Shisheng Huang, Selin D. Ahipasaoglu, Jason Gu, Kevin Otto, Katja Holtta-Otto, Kerk See Gim (Power Automation), 2013-2015.

National Science Foundation, HRD – Research in Disabilities Education, "Interpretations, Inspirations, & Innovations in STEM Education: Design-Based Learning with the Deaf," $3,000,076, 9/1/11 – 8/31/16, with R. Crawford and C. Muller, submitted for review.

National Science Foundation, "Sharing What Works: The Dissemination of STEM Active Learning Products," CCLI Program, Phase 3, $980,000, with D. Jensen (United States Air Force Academy), J. Linsey, and K. Schmidt, submitted for review.

National Science Foundation, "Collaborative Research - The Verrocchio Project: Advanced Analogical Search with Integrated Function and Form," CreativeIT Program, $800,000, with R. Crawford, J. Cagan (CMU), and C. Schunn (UPitt), submitted for review

Exxon-Mobile Foundation, "Beacon of Light Initiative for K-12 Engineering Literacy: Engineering the Future – Energy," $300,000, with R. Crawford, P. Schmidt, and D. Allen, submitted for review.

National Science Foundation, "EPIC: Engineering the Process of Innovation Center," $6,000,000, with Carnegie Mellon University, PI, Jon Cagan, submitted for review.

National Science Foundation, "ERC in Human Engineered Augmentation and Learning (HEAL)," $6,000,000, with PI: David Bourell, Richard Crawford, Joseph Beaman, Carolyn Seepersad, et al., submitted for review.

National Science Foundation, "Texas Academy for Young Engineers," with R. Crawford, Tony Petrosino, and D. Jensen, submitted for review.

National Science Foundation, "NSF/DMI Grantees Conference 2008," with D. Bourell, C. Seepersad, J. Beaman, and R. Crawford, $99,999, submitted for review.

Procter & Gamble, Co., "Development of an Analogical Search Tool," with Art Markman, $250,000, submitted for review.

National Science Foundation, SUGR Program, "Exploration of AI Analogical Search Tools," $60,000, in preparation.

Myers-Briggs Institute, "Team Forming Strategies with Jungian Modes," $85,000, in preparation.

National Science Foundation, Proctor and Gamble, "Innovation Research Center," $10,000,000, with Art Markman, in preparation.

National Science Foundation, "Innovative Dissemination of Active Learning Products in Mechanics of Materials," $150,000, in preparation.

National Science Foundation, "Parallel Direct-Write Processing for Large Area Patterning of Nano and Micro-Scale Features on Non-conformal Surfaces," with J. Beaman, D. Bourell, and M. Campbell, $358,407, submitted for review.

Schlumberger, "Predictive Cable Design: Stretch and Depth Measurement," $75,000, 2007-2009, submitted for review.

Schlumberger, "Product Flexibility: Methods in Product Innovation and Changing the Business Culture," $100,000, submitted for review.

ONR, "Advances in Rapid Manufacturing and Design Flexibility," $375,000, with J. Beaman, submitted for review.

Office of the Under-Secretary of the Air Force, "Fundamentals and Applications of Product Flexibility Principles," $75,000, with the United States Air Force Academy, submitted for review.

TEACHING ACTIVITIES:

Secondary School (Hyde Park High School, Austin TX)

AP Physics	Fall 2010 – Spring 2011

Undergraduate Courses Taught/Developed (University of Texas):

ME 366J	Mechanical Engineering Design Methodology
ME 466K	Mechanical Engineering Design Projects
FS 301	Freshman Seminar

UGS 302	Freshman Seminar, The Engineered World: Products and Innovation
ME 102	Introduction to Mechanical Engineering, Lecture: "Engineering Design from Concept to Production"
ME 344	Dynamic Systems and Controls
ME 144	Dynamic Systems and Controls Laboratory
ME 202	Lecture: "Reverse Engineering for Redesign"
ME 202	Introduction to Mechanical Engineering
ME 338	Machine Elements
ME 377K	Formula Car Design/Vehicle Dynamics
ME 377K	Interdisciplinary Product Design
ME 377K/ME 397K	Mechatronic Systems: ROBOLAB
ME 377K	UT and TAM University Challenge, Design Competition
ME TQM Course	Lecture: "Engineering in Industry vs. Academia"
Science 360	Engineering Fundamentals for Elementary Teachers
Science 360	A Second Course in Engineering Fundamentals for Elementary Teachers

Undergraduate Courses Taught/Developed (United States Air Force Academy):

Engineering Mechanics 290	Engineering Design Methods
Engineering Mechanic 470	Machine Design
Engineering Mechanics 200Z	Fundamentals of Mechanics
ME 492	Capstone Design

Undergraduate Courses Taught/Developed (Singapore University of Technology and Design, SUTD):

3.007	Introduction to Design (Freshmore)

Graduate Courses Taught/Developed (University of Texas):

ME 397; ME 392M-6	Engineering Design: Theory, Techniques, and Automation
ME 392M-7	Product Design, Development, and Prototyping
ME 397	Fundamentals of Solid Freeform Fabrication
ME 397P	Independent Study in Mechatronics and Automation: *National Instruments RoboLab and K-12 Education*
ME 379	UTeachEngineering: Design of Machines and Systems
ENM 383	Systems Design Metrics

ADDITIONAL TEACHING ACTIVITIES:

Undergraduate Advising

ME Senior Design and ME377K Projects:

J. Holt, T. Lao, and N. Monali, "Design of an Autonomous Teleoperated Cargo Transporting Vehicle for Lunar Base Operations" Fall 1989
J. Sines and J. Banks, "Road Construction Equipment for a Lunar Base"

Spring 1990

D. Harrington, J. Havens, and D. Hester, "Design of a Device to Remove Lunar Dust from Space Suits for the Proposed Lunar Base" Spring 1990

W. Caron, S. L. Howard, and S.H. Li, "Design of a Semi-Automatic Machine for Attaching Wrapped Hard Candies to Wire Stems" Summer 1990

S. Aziz, T. Cunningham, and M. Moore, "Design of a Debris Deorbiting Vehicle Based on Tether Technology" Fall 1990

B. Cameron, J. Duston, and D. Lee, "Design of the Substructures for the Lunar Habitat Module" Fall 1990

C. K. Han, G. Likins, and M. M. Razzaque, "Adaptive Design of a Solid Epoxy Resin Flaking Process" Spring 1991

R. Borger, A. Mahvash, W. G. Russell, "Design of an End Seal for a Closure of Telecommunication Cable Splices" Spring 1991

P. McKinney, "Design and Manufacture of a 1/10 Scale Dynamometer" Spring 1991 (ME377K)

R. Cavin, I. Tumer, S. Walker, and J. Born, "Design of a Test Device for Steering Forces on Pen Plotters" Summer 1991

B. Cheng, L. Perez, and D. Searight, "Design of Knee Prostheses" Summer 1991

L. Pearson, M. Trevino, and S. Tait, "Design of a Vibration Absorber for Exercise Equipment on the NASA Space Station" Fall 1991

J. D. Maupin, M.C. Pham, and R. Rice, "Design of a Midspan Marriage Coupling for a 55,000 Pound Rotary Dryer" Fall 1991

R. Cavin, "A Fractal-Based Tolerance Representation for Critical Features of Geometric Models" Spring 1992 (ME377K)

W. Ludlow, C. Penciu, and S. Young, "Design of a Multipurpose Instrument for Use in Thoracoscopic Surgery" Spring 1992

K. Armstrong, D. McAdams, J. Norrell, "Conceptual Design of a Fleet of Autonomous Regolith Throwing Devices for Radiation Shielding of Lunar Habitats" Spring 1992

G. Chin, M. Garner, and S. Keogh, "Design of a Device for Low-Cycle Testing of Solder Joints for Microelectronic Components on a Computer Board" Fall 1992

A. Roeger, C. Martin, and L. Woolverton, "Design and Fabrication of a Positioning Device for Patients Undergoing Magnetic Resonance Imaging of the Foot" Spring 1993

C. Chudej, S. Lalumandier, B. Brooks, "Design of a Circuit Card Connector-Pin Detection Tool" Summer 1993

"Design of a Space Station Exercise System" Summer 1993

S. Stevens, "Reverse Engineering of a Mechanical Toy Helicopter and an HVAC Compressor" Spring 1994 (ME377K co-advisor with P. Schmidt and R. Crawford)

K. Jennings, "Reverse Engineering of a Mechanical Hair-Dryer Toy and an Electric Lawnmower" Spring 1994 (ME377K co-advisor with P. Schmidt and R. Crawford)

A. Chang, M. Glazer, and J. Miers, "Design of a Defect Reduction System for the Wave Solder Process at the IBM ECAT Plant" Spring 1994

S. Jon, "Design of a Defect Monitoring and Correction System for the IBM Wave Soldering Process" Summer 1994

M. Briley, S. de Cruz, and P. Hozdic, "Design of Processes and Tooling to Reduce Setup Time and Unplanned Downtime of a Printed Circuit Board Manufacturing Plant" Fall 1994

A. de la Blanco, "Reverse Engineering of a Ten-Speed Bicycle"
Spring 1995 (ME377K)
E. Ballarin, M. Fast, and J. Waldman, "Conceptual Design of a New Cat Litter Box"
Spring 1995
G. Kabatepe, E. Burton, and T. Bankler, "Conceptual Design of a Finger Nail Applicator Product"
Spring 1995
D. Reese, et al., "Design of a Dental Mirror"
Summer 1995
P. Gold, C. Graf, C. Jones, and J. Zaragoza, "Design of Critical Components for a Reusable Ink Management System for the HP Deskjet 1200C Printer" Fall 1995
Tracy, Kevin, Ben Fall 1995
K. Guinn, R. Karanja, and B. Lee, "Design and Development of an Automated Dog Food Dispenser"
Spring 1996
A. Akhtar, J. Berndt, and J. Hill, "Innovative Redesign of the Brooke Elementary Playscape,"
Summer 1996
H. Kleeman, C. Reeds, and D. Zell, "Design of a Process to Evaluate Reach from an Articulating Portable Foot Restraint" Fall 1996
M. Alvarez, R. Billington, and M. Farrar, "Design of a Continuously Variable Transmission for Use on Bicycles" Spring 1997
B. J. Arritt, J. Forte, and E. Burke, "Design of a Portable Tensile Testing Machine"
Spring 1998 (USAFA-ME 492)
J. Cook, L. Messick, Mike Z., and C. Alvarado, "Design on an Automatic Bicycle Transmission"
Spring 1998 (USAFA-ME 492)
G. Chandler, B. Johnston, J. Yeh Fall 1998
J. Abbage, S. Diaz De Leon, S. Miles Fall 1998
C. Bruns, M. Smith, and A. Webb, "Design of a Camera Mast for the Martian Hexabot Microprobe"
Spring 1999
B. Bredesen, E. Duncan, M. Kuhn, and M. Sharp, "Design of a Surface Mount Quartz Resonator Package"
Spring 1999
Students/Team Fall 1999
Students/Team Fall 1999
M. Brosseau, J. Moore, and N. Tcheung, "Design and Prototype of a Camera Mast for the Martian Hexabot Microprobe, Spring 2000
J. Dossey, A. Pichot, and K. Nevlud, "Ford Brake-Line Assembly Ergonomic Redesign,"
Spring 2000
J. Arevalo, D. Bakshi, and J. Rivers, "The Design of a Safe Box Cutting Device,"
Spring 2001
L. Barrera, S. Strong, and J. Tan, "The Design of a Lift Fixture for the Installation of Gas Panels,"
Fall 2001
C. Dyer, J. Henry, and M. Kammerdiener, "Design of a Self Tuning Guitar System,"
Fall 2001
M. Alvarez, N. Chung, T. Sanchez, "Reverse Engineering and Redesign of a Water Rocket Launcher,"
Spring 2002
J. Newsom, R. Owen, and B. Zion, "Design of a Yamazumi Board,"
Spring 2002
M. Balley, E. Terrell, C. Henry, and C. Lin, "Design of a Power and Signal Transmission System for a Tire Deflection Sensor," Summer 2002
E. Schaffer, "Design of a Truck Undercarriage Subsystem,"

Spring 2002 (ME 177K)
E. A. Woodard, "Product Development and Tooling Design of an Automobile Accessory Product: A Novel UT Emblem," Fall 2002 (ME377K)
A. Henken, J. Rutledge, and J. Ruth, "Design of a Precision Break-Away Arm," Fall 2002
S. Bradbury, C. Real, and T. Picot, "Design of a Downhole Tool Support System," Fall 2002
A. Irrgang, Prieto, J., and Rosen, J., "Design of a Process and Tooling to Assist Applied Materials' Pre-Shipment Testing Operations," Fall 2003
R. Espinosa, A. Rai, and A. Short, "Process to Create Structures that Connect the Rear and Front Wings of a Dual Joined Wing Aircraft," Fall 2003
S. Christmas, B. Lee, and J. Perez, "Design of a NASA EVA Tether Hook," Spring 2004
P. Cardenas, M. Hense, and D. Shreter, "The Automation of the Rosedale School Platform Swing," Spring 2004
E. Goerland, E. Parkman, and A. Pena, "Computational Model of Pressure Effects on Internal Collar Components," Summer 2004
B. Lauderdale, A. Marinik, and S. Walters, "Golf Wedge Resistance Measurement," Spring 2005
Sixteen Students from ME and ECE, "Interdisciplinary Engineering Design of an Induction Tool Calibration System," Schlumberger, Fall 2005 (ME 377K)
C. Jennings, P. Waters, and J. Martinez, "SEED Intelligent Lantern Project for Third World Countries, Sponsored by Schlumberger," Spring 2006
J. Bellard, "Design and Prototyping of a Human-Bicycle Energy System for Third World Countries," Spring 2006 (ME 177K)
K. Diekroeger, J. Heisler, and A. Weyant, "SEED Human-Powered Generator," Fall 2006
Thomas Grimley, "Development of a Design Transformer Theory," Spring 2007 (ME 377K)
Stephen Rawlings, "Development of Epitome Products of Design Transformers," Spring 2007 (ME 377K)
Ted Cang, Lauren Oholendt, and Jared Tong, "Basic Utility Vehicle Front Steering Redesign," Spring 2007
Jason Hipke, Duran Mendoza, and Ryan Rittmueller, "Design of a Wafer Chuck Semiconductor Manufacturing Equipment," Spring 2007
Emily Clauss, Trevor Dye, and Tyler Heidebrecht, "Design of a Guide and Tension Loop Motion Picture Film," Spring 2007
John Mims, Paul Sherek, and Kevin Thurston, "Design of a Semi-Automatic System for Welding Live Pipelines and Pressure Vessels," Spring 2007
Ryan Barksdale, Nick Padon, and Derek Sowell, "Hexavalent Chromium Isolation," Fall 2007
Gregory Armstrong, Gina, Chen, and Victoria Romero, "Design of a Flexible Mounting Solution for Small Computers," Spring 2008
Ben Coffey, Scott Hamill, and Jason Strouse, "The University of Texas Formula SAE Team Integrated Gearshift and Clutch Mechanism," Spring 2008
Jason Douglas, Jason Henry, and Megan Rohrer, "Expandable Sleeve and Deployment Tool," Summer 2008
Joseph Alexander, "Smart Sensing Systems: Weeble Wobble Drop Sensor Configurations," Summer 2008
Ashley Browning, Eric Dierks, and Matt Williams, "Low Oil Sensor for a Formation Evaluation Tool,

Fall 2008
Jeffrey Gjertsen, Parker Hyink, and Kelly Keefe, "Design of Custom Bicycle Frame Tools," Spring 2009
Leonard Edwards, Lisa Ivy, and Gregory Sherman, "Design of Control Line Installation Tool for an Oil Field Packer," Fall 2009
Don English, Lane Lemesany, and Philip McLain, "Mobile Surveillance and Tracking for Special Operations," Spring 2010
Robert Secker, Kimberly (Robin) Souers, and Ruoyi (Leo) Zhang, "Vibration Energy Harvesting for Bridge Monitoring Applications," Spring 2010
Armin Aliefendic, Lucas Artusi, Matthew Bosch, and Tram-Anh Huynh. "BME Senior Design Team," Spring 2011
Irena Isdraila, Lauren Johnson, and Brooke Murphy, "Test Fixture to Test the Coefficient of Friction between TuffTRAC Wheels and an Oil Casing," Spring 2011

Graduate Advising

Thesis/ Co-Reader:

J. Devine	Spring 1991	W. Weldon, Advisor
C. Pennington	Spring 1991	D. Tesar, Advisor
J. Iaconis	Fall 1991	D. Tesar, Advisor
M.W. Chu	Spring 1992	D. Tesar, Advisor
J.S. Ahn	Fall 1992	R. Crawford, Advisor
A. Srikantappa	Spring 1992	R. Crawford, Advisor
R. Bryngelson	Fall 1993	D. Tesar, Advisor
B. McNatt	Fall 1993	D. Tesar, Advisor
B. Hill	Fall 1993	D. Tesar, Advisor
C. Pencis	Spring 1994	D. Tesar, Advisor
D. Perkins	Spring 1996	W. Weldon, Advisor
R. Cavin	Spring 1996	R. Crawford, Advisor
D. Burhan	Fall 1998	R. Crawford, Advisor
D. Thompson	Fall 2000	R. Crawford, Advisor
Aprajit Pratap	Spring 2002	R. Crawford, Advisor
C. Baroud	Summer 2001	I. Busch-Vishniac, Advisor
R. Deshmukh	Spring 2001	
S. Prasanna	Fall 2003	M. Campbell, Advisor
Srikanth Tadepalli	Fall 2003	R. Crawford, Advisor
Austin Talley	Summer 2008	R. Crawford, Advisor
Matthew Saunders	Spring 2010	C. Seepersad, Advisor
Peter Doblar	Spring 2011	J. Beaman, Advisor

Ph.D. Committees:

R. Ambrose	Summer 1991	D. Tesar, Advisor
H. Kleespies	Spring 1994	R. Crawford/J. Beaman, Advisors
J.S. Ahn	Spring 1996	R. Crawford, Advisor
C.G. Jung	Spring 1997	I. Busch-Vishniac and G. Masada, Advisors
B. Hill	Spring 1997	D. Tesar, Advisor
T. Thompson	Spring 1997	S.V. Srinivasan, Advisor
M. Kandis	Spring 1999	K. Ball, Advisor

S.M. Park	Fall 2000	R. Crawford, Advisor
D. Thompson	Fall 2000	R. Crawford, Advisor
Vigain Harutunian	Summer 2003	J. Jones, Advisor
Mario Faustini	Spring 2004	R. Crawford/R. Neptune, Advisors
Katja Holtta-Otto	Summer 2005	Kalevi Ekman, Helsinki University of Technology, Advisor
C. Turner	Fall 2005	R. Crawford, Advisor
S. Chen	Spring 2006	D. Bourell, Advisor
Tolga Kurtloglu	Summer 2007	M. Campbell, Advisor
Gao Ma	Summer 2008	R. Crawford, Advisor
P. Backlund	Fall 2009	C. Seeepersad, Advisor
Vasileious Samaras	Fall 2009	S. Wood, Advisor
D. Shahan	Spring 2010	C. Seepersad, Advisor
Daniel Smithwick (MIT)	Spring 2015	L. Sass, Advisor

ME397P Projects (Graduate):

K. Warne	Spring 1994
J. Bezdek	Summer 1995
A. Tran	Summer 1997
J. Perez	Fall 1997
Neha Prakash Takawale	Fall 2005
Manasi S. Tamhankar	Fall 2005
Brandon Walther	Fall 2008
Eric Dierks	Summer 2010
Steve Embleton	Summer 2010

Faculty Advisor for Student Organizations:

Tau Beta Pi Engineering Honors Society, 1990-1994
ASME Regional Conference Design Contest, "PERPETUAL LEAKAGE - The Leaking Bottle Refiller," Judge, 1991
ASME E-Days Pie Throwing at Faculty, 1997
ASME Regional Conference Design Contest, "Design of a Widget Sorting Machine," Faculty Advisor, USAFA, 1998
National Instruments Annual Conference, Robolab Mania, Judge, August 2002
2010 SEC Alternative Energy Challenge, Judge, The University of Texas, Austin TX, November 19, 2010
Projects for Under-served Communities, Advisor, Patriensa, Ghana, June 2011

Co-Director NASA/USRA Program, Department of Mechanical Engineering:

Capstone design (with S. Nichols), 1989-1992
Design methodology (with S. Nichols and R. Crawford), 1992-1995

CONTINUING EDUCATION (courses taught):

Invited Tutorial: "Object-Oriented Programming in Mechanical Engineering Design," ASME CIE Conference, Boston, MA, August, 1990.

"Object-Oriented Programming: Applications in Mechanical Engineering Design," Invited Tutorial: ASME CIE Conference, Santa Barbara, CA, August, 1991.

"Design Technology in Mechanical Engineering," AISD AIM High Program, Workshop for Kindergarten and First Grade Teachers, October, 1991.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," The University of Texas, Continuing Education, October 1992-June1993.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," The University of Texas, Continuing Education, July, 1993.

"Technical Vitality 2000: Changing the Culture," IBM, Fall, 1993.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Southwest Educational Development Laboratory, Austin TX, October 1993-May 1994.

"Technical Vitality, Concurrent Engineering, and Redesign," UT Management Institute, UT College of Engineering Continuing Education, March, 1994.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Southwest Educational Development Laboratory, Austin TX, June-July, 1994.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Southwest Educational Development Laboratory, Austin TX, October 1994-May 1995.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Southwest Educational Development Laboratory, Austin TX, June-July, 1995.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Department of Mechanical Engineering, Austin TX, October 1995-May 1996.

"Texas Energy Symposium," The University of Texas, 1996.

"Design Technology and Engineering for K-3," Maplewood Elementary, Austin, TX, Spring, 1996.

"Design Technology and Engineering for Grades 4-6," Maplewood Elementary, Austin, TX, Spring, 1996.

"Design of Structures," Kirby Hall (private primary and secondary school), Austin, TX Spring, 1996.

"Design with Work and Energy," Allison Elementary, AISD, Austin, TX Spring, 1996.

"Discover Engineering! Welcome to the Real World," National Technological University Broadcast, Chicago, IL, February, 1996.

"Design with Mechanisms," Elgin Elementary School, Elgin ISD, Elgin, TX, Spring, 1996.

AISD Summer Science Institute, 2nd Grade, Austin, TX, June, 1996.

AISD Summer Science Institute, 6th Grade, Austin, TX, June, 1996.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, July, 1996.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin TX, July, 1996.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Department of Mechanical Engineering, Austin, TX, October 1996-May 1997.

"World of Engineering: Reverse Engineering and Dissection," Sponsored by UT College of Engineering EOE Office, October, 1996.

"Discover Engineering: Engineers Make a World of Difference," National Technological University Broadcast, Chicago, IL, February, 1997.

"Design of Structures," Kirby Hall (private primary and secondary school), Austin, TX, Spring, 1997.

"Product Dissection and Reverse Engineering" Workshop, St. Andrews Episcopal School, Spring, 1997.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, July, 1997.

"Engineers Turning Ideas into Reality: Breaking Through the Creative Engineer," National Technological University Broadcast, Chicago, IL, February, 1998.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin TX, June, 1998.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, June and July, 1998.

"An Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," Department of Mechanical Engineering, Austin, TX, October 1998-May 1999.

"DTEACh Control Curriculum Workshop: RoboLab," Sponsored by National Instruments, The University of Texas, Dept. of Mechanical Engineering, Austin, TX, March, 1999.

"DTEACh and MATH COUNTS," Sponsored by TSPE, Abilene Christian University, Abilene, TX, June, 1999.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin, TX, June, 1999.

"CEW DTEACh," Sponsored by the UT Women in Engineering Program, The University of Texas, Dept. of Mechanical Engineering, Austin, TX, June, 1999.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, June and July, 1999.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin, TX, June, 2000.

"CEW DTEACh," Sponsored by the UT Women in Engineering Program, The University of Texas, Dept. of Mechanical Engineering, Austin, TX, June, 2000.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, June and July, 2000.

"DTEACh and RoboLab," Pleasant Valley Elementary School, AISD, Austin, TX, Fall 2000.

"Ford Motor Company, DFSS Training," Powertrain, Detroit, MI, January 2001.

"Ford Motor Company, DFSS Training," Volvo, Detroit, MI, March 2001.

"Ford Motor Company, DFSS Training," Jaguar and Windstar, Detroit, MI, April 2001.

"Everyday Devices: Structures, Energy, Mechanisms, Machines, Motion," Pflugerville Elementary Teachers Workshop, Connally High School, June 5, 2001.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin, TX, June, 2001.

"DTEACh RoboLab," University of Texas, Austin, TX, June, 2001.

Engineering Design Institute, High School Program, Outreach Office and the Department of Mechanical Engineering, The University of Texas, Austin, TX, June and July, 2001.

"A Second Elementary Teacher Preparation Course in Design Technology and Engineering for America's Children," University of Texas, Austin, TX, June, 2002 (Sponsored by Ford Motor Company & National Instruments).

"DTEACh RoboLab: AISD Session," University of Texas, Austin, TX, June, 2002 (Sponsored by Ford Motor Company & National Instruments).

"DTEACh RoboLab: General Session," University of Texas, Austin, TX, June, 2002 (Sponsored by Ford Motor Company & National Instruments).

"DTEACh RoboLab," University of Texas, Austin, TX, June/July, 2003 (Sponsored by National Instruments).

"Proactive Methods for Product De-Liability," 4th Annual UT/ IEEE Engineering Management Workshop on Product Liability, Continuing Lifelong Engineering Education (CLEE), August 14-15, 2003.

"DTEACh RoboLab," The University of Texas, Austin, TX, June/July, 2004 (Sponsored by National Instruments).

"DTEACh Advanced Control and Robotics Workshop," The University of Texas, Austin, TX, October 23, 2004.

"Investigator Adventures: DTEACh/NI Workshop," The University of Texas, Austin, TX, February 2005.

"Events, Containers, and Tag-Team in ROBOLAB: DTEACh/NI Workshop," The University of Texas, Austin, TX, April 2005.

"DTEACh RoboLab," The University of Texas, Austin, TX, June/July, 2005 (Sponsored by National Instruments).

"DTEACh Advanced Control and Robotics Workshop," The University of Texas, Austin, TX, November, 2005.

"Events, Containers, and Tag-Team in ROBOLAB: DTEACh/NI Workshop," The University of Texas, Austin, TX, January 21, 2006.

"Investigator Adventures: DTEACh/NI Workshop," The University of Texas, Austin, TX, February 25, 2006.

"Cock-Roach RoboLab: Events, Containers, and Investigator, University of Texas, Austin, TX, April 2006.

"DTEACh RoboLab Summer Institute," The University of Texas, Austin, TX, June/July, 2006 (Sponsored by National Instruments).

"DTEACh Automation: Unveiling of the Mindstorms NXT System," The University of Texas, Austin, TX, June/July, 2006 (Sponsored by National Instruments).

"DTEACh Automation: Unveiling of the Mindstorms NXT System," The University of Texas, Austin, TX, October 2006 (Sponsored by National Instruments).

"DTEACh Advanced Control and Robotics Workshop," The University of Texas, Austin, TX, March 10, 2007.

"DTEACh / TSTEM: Design Science Investigation," Region XIII Education Service Center, TEA, April 3, 2007.

"DTEACh Automation: Advanced NXT," The University of Texas, Austin, TX, April 14, 2007.

"DTEACh / TSTEM: Design Science Investigation," Region XX Education Service Center, TEA, May 11, 2007.

"DTEACh / TSTEM: Design Science Investigation," Region XIII Education Service Center, TEA, June 2007.

"DTEACh Lego Mindstorms NXT Summer Institute," The University of Texas, Austin, TX, July, 2007 (Sponsored by National Instruments).

"DTEACh / TSTEM: Design Science Investigation," Region XX Education Service Center, TEA, August, 2007.

"DTEACh / TSTEM: Design Science Investigation," Region XX Education Service Center, TEA, June 3-5, 2008.

"DTEACh Lego Mindstorms NXT Summer Institute," The University of Texas, Austin, TX, June, 2008 (Sponsored by National Instruments).

"DTEACh Lego Mindstorms NXT Summer Institute," The University of Texas, Austin, TX, July, 2008 (Sponsored by National Instruments).

"DTEACh / TSTEM: Design Science Investigation," Region XIII Education Service Center, TEA, August 11-13, 2008.

"DTEACh Lego Mindstorms NXT Summer Institute," The University of Texas, Austin, TX, July, 2009 (Sponsored by National Instruments).

"DTEACh / TSTEM: Design Science Investigation," Region XIII Education Service Center, TEA, July, 2009.

"UTeachEngineering – Design of Machines and Systems," The University of Texas, Austin, TX, July, 2010 (Sponsored by NSF).

"DTEACh Lego Mindstorms NXT Summer Institute," The University of Texas, Austin, TX, July, 2010 (Sponsored by NSF and National Instruments).

"First Lego League Regional Qualifier Competition," Judge and Challenge Awards MC, Del Valley Middle School, DVISD, November 13, 2010.

"Beyond Blackboards," The University of Texas, Austin, TX, February 1, 2011.

"Mechanimals Designette," Singapore University of Technology and Design (SUTD), Open House, October 2011.

"Active Learning Workshop," Singapore University of Technology and Design (SUTD), November 2011.

"Active Learning Workshop," Massachusetts Institute of Technology (MIT), November 2011.

"Active Learning, 4D Pedagogy, and Designettes Workshop," Singapore University of Technology and Design (SUTD), Spring 2012

"Active Learning, 4D Pedagogy, and Designettes Workshop," Massachusetts Institute of Technology (MIT), Spring 2012.

"Facilitator Professional Development Workshop," Singapore University of Technology and Design (SUTD), Open House, February 2012.

"Mechanimals Designette," Singapore University of Technology and Design (SUTD), Open House, March 2012.

"Card Systems Design Designette," Singapore University of Technology and Design (SUTD), Open House, March 2013.

"Interactive Music / Electronics Designette," Singapore University of Technology and Design (SUTD), Open House, March 2013.

"Design of Interactive Music: Unique Speaker and Continuous Instrument Concepts," Singapore University of Technology and Design (SUTD), Invited JC Students, June 2013.

"Creativity and Design," Marketing and MBA Course, Nanyang Technological University (NTU), July 2013.

"Creativity and Design," Marketing and MBA Course, ACI, Nanyang Technological University (NTU), April 2014.

"Design Science and Thinking Workshop," OCBC Training Center, Singapore, July 15, 2014.

"Designette - Design of Interactive Music: Unique Speaker and Continuous Instrument Concepts," Singapore University of Technology and Design (SUTD), Invited/Volunteer Victoria, Nanyang, and Tampines JC Students, August 13, 2014.

"Design-Based Learning: Integrating Design into Subject-Based Classrooms," *SKSS Learning Festival*, Key Sharing Session, November 19, 2014.

POST-DOC SUPERVISIONS: (5)

R. Ruizpalacios	"Innovations in manufacturing processes: layered based systems," 2005
B. Koraishy	"Manufacturing Advances in DMFCs: Flexible Manufacturing Principles," 2011
D. Moreno	"Fundamental Studies in Ideation with Applications to Financial Transactional Problems and Energy Harvesting Technologies," 2012-2014
K. Fu	"Design with the Developing World," 2012-2014
C. Telenko	"Sustainable Design and Product Rebound." 2013-2015

PH.D. SUPERVISIONS COMPLETED: (24)

R. da Silva	"Geometric reasoning for mechanical engineering design"	August 1991
A. Hernandez	"A unified set-based method for parameter design of robotic actuators with high dynamic performance" (D. Tesar, co-supervisor)	February 1994
R.S. Srinivasan	"A theoretical framework for functional form tolerances in design for manufacturing"	Spring 1994
R. Stone	"Toward a theory of modular design"	Fall 1997

I. Tumer	"Foundations of condition monitoring for manufacturing and design" (I. Busch-Vishniac, co-supervisor)	Spring 1998
U. Cho	"Novel empirical similarity method for rapid product testing and development"	Summer 1999
J. Norrell	"A mixed mode thermal/fluids model for improvements in SLS part quality, machine design, and process design" (R. Crawford, co-supervisor)	Summer 1999
D. McAdams	"Functional tolerance design: foundations, tools, and techniques"	Summer 1999
James Monty Greer	"Effort flow analysis a methodology for directed product evolution using rigid body and compliant mechanisms"	Summer 2002
M. Van Wie	"Designing product architecture: a systematic method"	Fall 2002
L. Jepson	"Multiple material selective laser sintering" (J. Beaman, co-supervisor)	Fall 2002
A. Dutson	"Functional prototyping through advanced similitude techniques"	Fall 2002
J. Wood	"Empirical Analysis Techniques" (*ad hoc*, Colorado State University)	Spring 2002
R. Ruizpalacios	"Laser direct-write of optical components prepared using the sol-gel process"	Fall 2004
Matthew Green	"Enabling Design in Frontier Contexts: A Contextual Needs Assessment Method with Humanitarian Applications"	Fall 2005
Julie Linsey	"Design-by-Analogy and Representation in Innovative Engineering Concept Generation"	Fall 2007
Srikanth Tadepalli	"Empirical Similitude Method"	Spring 2009
A. Tilstra	"Representing Product Architecture and Analysis of Future Product Flexibility,"	Spring 2010
B. Koraishy	"Continuous Manufacturing of Direct Methanol Fuel Cell Membrane Electrode Assemblies,"	Fall 2010
C. K. White	"Taking HEED: Intersections of Women's Lives with Humanitarian Engineering Experiences and Design," (*ad hoc*, Teachers College, Columbia University)	Spring 2011
Jason Weaver	"Innovative Energy Harvesting Technology for Wireless Bridge Monitoring Systems"	Summer 2011
Jeremy Murphy	"Patent-Based Analogy Search Tool for Innovative Concept Generation"	Summer 2011
Diana Moreno	"Innovative Optimal Design Methods and Roadmap" (*ad hoc*, Monterey Tech University)	Spring 2012
Katherine Fu	"Discovering and Exploring Structure in Design Databases and Its Role in Design by Analogy," (*ad hoc*, Carnegie Mellon University)	Spring 2012

M.S. SUPERVISIONS COMPLETED: (75)

R. Navaneethakrishnan	"An object-oriented formalism for geometric reasoning in engineering design and manufacture"	January 1993
C.S. Foong	"Design assessment of micro-electro-mechanical systems, with application to a microbiology cell injector"	Spring 1993

R. Ratliff	"Modeling of vertical centrifugal pumps for failure analysis and redesign"	Fall 1993
J. Coles	"Automated recognition of volumetric form features from solid models using surface extension"	Fall 1993
N. Kane	"A unified approach to the analysis and synthesis of differential drive mechanisms"	Fall 1993
B. Maddox	"Modeling and design of a smart hydrodynamic bearing with an actively deformable surface"	Summer 1994
S. Flagg	"Design and construction of an apparatus to test active hydrodynamic bearings" (W. Weldon, supervisor, K. Wood, co-supervisor)	Fall 1994
C. Hearn	"A methodology for the design of smart and hybrid bearing systems" (I. Busch-Vishniac, co-supervisor)	Fall 1994
D. LeFever	"Integrating Design for Assemblability Techniques and Reverse Engineering"	Spring 1995
A. Ravoori	"Variant Design Methodology for Crankshaft Dunnage"	Spring 1995
M. Foohey	"Design for Assemblability of Low-Production Devices"	Spring 1995
R. Zayed	"Reverse engineering experimental methods for determining material identification and electromechanical device specifications"	Summer 1995
C.S. Chu	"Dynamic Modeling and Design of Journal Bearings with Actively Deformable Surfaces" (I. Busch-Vishniac, co-supervisor)	Summer 1995
J. Miller	"New shades of green"	Fall 1995
D. Masser	"An experimental investigation of hydrodynamic bearings with micromachined surfaces" (W. Weldon, co-supervisor)	Fall 1995
P. Koeneman	"Conceptual design of a micro power supply for a MEMS smart bearing" (I. Busch-Vishniac, co-supervisor)	Fall 1995
P. Gibbs	"Historical Assessment of Fractured Femoral Implants and Related Laboratory Mechanical Testing"	Spring 1996
C. Baroud	"Induced dynamical variations in hydrodynamic bearings" (I. Busch-Vishniac, supervisor)	Summer 1996
A. Little	"A reverse engineering toolbox for functional product measurement"	Spring 1997
G. Faulkner	"Design of a method to embed sensors in a solid freeform fabrication process"	Spring 1997
I. DaWood		Summer 1997
E. J. Bezdek	"An enhanced volumetric feature recognition method for direct engineering"	Fall 1997
A. Tran	"Design Edge"	Summer 1998
J. Wieck	"Bandwidth determination of an interface for an intelligent wheelchair"	Summer 1998
J. Perez	"Powder delivery for a multiple material Selective Laser Sintering machine"	Spring 1999
Sushant Koshti		Fall 1999
Shariq Samad		Spring 2000
Ram Krishnan		Spring 2001
Matthew Green	"Small-scale electricity generation: selecting an appropriate technology "	Fall 2001
Riyad Moe	"Prototype partitioning derived from requirement flexibility"	Spring 2002

Jagan Rajan	"A robust functional modeling method in product development"	Spring 2002
Nachiket Patwardhan	"Instrumented prototyping "	Spring 2002
Amilia Hansen	"Design for accessibility"	Spring 2003
Moss Shimek	"Instrumented prototypes: single layer access"	Summer 2003
Karmen Lappo	"Discrete multiple material selective laser sintering (M2SLS): investigation of powder delivery methods"	Summer 2003
Vinay Sriram	"Parametric modeling of sol-gel based multi layer thin films for optical waveguides"	Fall 2003
Palani Rajan	"Design for flexibility: measures and guidelines"	Fall 2003
Kĭrsten Cole	"Active learning and engineering education"	Fall 2003
Vaibhav Pattarkine	"Meso-Scale SLS"	Spring 2004
Brian Doud	"Structural empirical similitude method"	Spring 2004
Chanan Pinyopusarerk	"Empirical Study of Product Flexibility Fundamentals"	Spring 2004
Brian Oleson	"A mechanical breadboard developed using an empirical study of existing products"	Summer 2004
Bradley Jackson	"Novel fabrication of sand casting cores with discrete multiple material Selective Laser Sintering"	Summer 2004
Jeremy Murphy	"Modeling for control of laser melting processes"	Fall 2004
Tim Schaffer	"Extraction of Product Flexibility Design Principles from Patent Literature and Their Application in the Design Process"	Fall 2004
Marcos Lopez Munoz	"Product Design Flexibility" (Transfer Student from Spain)	Fall 2004
Benjamin Kuchinsky	"Development of product flexibility principles for engineering design"	Spring 2005
Julie Linsey	"Innovative Concept Generation Techniques"	Fall 2005
Atif Qureshi	"Flexibility: Design for Evolution"	Spring 2006
Jennifer Porlier,	"Innovative Functional Tool for Low-Volume, Cost Driven Assistive Technology Design"	Spring 2006
Stewart Skiles	"Development of Principles and Facilitators for Transformational Product Design"	Spring 2006
Darren Keese	"Flexibility for Design Evolution: Guidelines and Measurement"	Fall 2006
James Mikes	"Development of a Novel Mechanical Breadboard"	Fall 2006
Jason Herlehy	"Design Considerations for Testing Freeform PEM Fuel Cells"	Spring 2007
Andrew Tilstra	"Review and Application of Research in Product Flexibility for Future Evolution"	Summer 2007
Neha Takawale	"A Methodology for Assigning a Readiness Rating in Change Modes Effects and Analysis,"	Summer 2007
Vik Singh	"Design for Transformation: Design Principles and Approach with Concept Generation Tools and Techniques"	Spring 2007
Jason Weaver	"Transformer Design: Empirical Studies of Transformation Principles, Facilitators, and Functions"	Spring 2008
Nathan Putnam	"Energy Systems and Transformers with Applications to Unmanned Aerial Vehicles"	Fall 2008

Shruthi Chandran	"Innovation and Idea Generation through Brainstorming: An Analysis and Extension of Conventional Methods"	Fall 2008
Maura Nippert	"Lifecycle Design for Environment Review: A Manual for Mechanical Product EcoDesign Implementation"	Fall 2008
Dennis Wang	"A Novel Transformational Design Methodology Using Storyboarding"	Spring 2009
Kristen Kaufman	"A New Wave in Engineering Education: Understanding the Beat of Active Learning through Innovative Tutorial Assessment"	Fall 2009
Jarden Krager	"Understanding Innovation: A Study of Perspectives and Perceptions in Engineering"	Fall 2009
Brad Camburn	"Transformational Indicators: Deciding When to Develop Transformable Products"	Summer 2010
Michael VanOverloop	"Exploration and Feasibility of Ornithopter-Wing Test Beds"	Summer 2010
Jeremy Guillory	"Foundations of a Reverse Engineering Methodology"	Spring 2011
Travis McEvoy	"Wind Energy Harvesting for Bridge Health Monitoring"	Spring 2011
Patrick Pace	"Development of a Design Methodology and Application to Advance the Field of Highly Mobile Robotics"	Spring 2011
Eric Dierks	"Design of an Electromagnetic Vibration Energy Harvester for Structural Health Monitoring of Bridges Employing Wireless Sensor Networks"	Summer 2011
Todd Head	"Reverse Engineering Toolbox"	Summer 2011
Nicole Howard	"Redesigning Reverse Engineering Curriculum"	Summer 2011
Roy Eid	"Reverse Engineering Toolbox for Pedagogical Applications"	Spring 2012
Krystian Zimowski	"Next Generation Wind Energy Harvester to Power Bridge Health Monitoring Systems"	Spring 2012
Sumedh Inamdar	"Solar Energy Harvesting for Wireless Sensor Networks"	Summer 2012

RESEARCHER (POST BACCALAURETTE) SUPERVISION:

Rachel Kuhr	Design with the Developing World	Spring 2012-Fall 2013
Leonardus Adi Prasetya	Autonomous-Transforming Systems Design	Summer 2012-Present

PH.D. IN PROGRESS:

Brad Camburn
Kevin Blake Perez
Jaclyn Lee

M.S. IN PROGRESS:

Brandon Walther
Jean Doglio
Srikanth Gorugantula
Erik Freeman

OTHER STUDENT RESEARCH SUPERVISION:

Undergraduate Research Assistants:

I. Tumer	Summer 1992	NSF REU Program
R. Cavin	Summer 1992	NSF REU Program
G. Suarez (UTEP student)	Summer 1994	UT EXCELL Program
M. Castillo	Summer 1996	UT EXCELL Program
N.E. West	Fall 1996	Texas Research Experience
N.E. West	Spring 1997	Texas Research Experience
V. Green	Fall 2000, Spring 2001	Texas Research Experience
Gabriel P.	Fall 2001	Texas Research Experience
Vance F.	Fall 2001	Texas Research Experience
Brad Hull	Summer 2004-Spring 2006	Prototyping Research
Jun Jay Tan	Summer 2004-Spring 2005	PUC Research
Justin Custer	Summer 2005-Spring 2006	ONR Fuel Cell Research
Rachel Kuhr	Fall 2005-Spring 2006	Design-by-Analogy Research
Jesse Bullard	Spring 2006	3rd World Country Power/Pump Systems
Andrew Kwok	Spring 2006–Summer 2006	NSF REU: Analogical Reasoning, UAV/MAV
Emily Clauss	Summer 2006	NSF REU: Analogical Reasoning
Blake Copple	Summer 2006	NSF REU: Testing System Scaled Stripper Rubbers
Logan Warren	Summer 2006	NSF REU: UAV/MAV: Design Transformers
Jing-Jing Zhou	Spring 2006-Summer 2006	NSF REU: Hands-On Activities
Phillip Becker	Summer 2006	USAFA Summer Research: UAV/MAV
Benjamin Parker	Summer 2006	NSF REU: Analogies and Mechanical Breadboards
Rachel Kuhr	Fall 2006-Spring 2007	Design-by-Analogy Research
Emily Clauss	Fall 2006-Spring 2007	NSF REU: Analogical Reasoning
Blake Copple	Fall 2006-Spring 2007	NSF REU: Testing System Scaled Stripper Rubbers
Logan Warren	Fall 2006-Spring 2007	NSF REU: UAV/MAV: Design Transformers
Rachel Kuhr	Fall 2007-Spring 2008	Design-by-Analogy Research
Jason Guillemette	Fall 2008-Summer 2009	Transformational Design Research
Rachel Kuhr	Fall 2008-Summer 2009	Transformational Design Research
Jason Guillemette	Fall 2009	Transformational Design Research
Rachel Kuhr	Fall 2009-Spring 2010	Transformational Design Research, Analogies
Susan Conover	Fall 2009-Spring 2010	System Flexibility and Energy Harvesting
Kyle J. Jesse	Spring 2010	Design by Analogy and Robotic Systems
Michael H. Singerman	Spring 2010	Design by Analogy and Robotic Systems
Jorge L. Flores	Spring 2010	Design by Analogy and Energy Harvesting
Sopeade O Lanlehin	Spring 2010	Design by Analogy and Energy Harvesting
Ryan N. Deal	Spring 2010	System Flexibility
Katherine A. Palmerton	Fall 2009-Spring 2010	Product Flexibility
Daniel F. Peterson	Spring 2010	Product Flexibility
Adam Pate	Fall 2010-Summer 2011	Energy Harvesting
Jorge L. Flores	Fall 2010	Design by Analogy and Energy Harvesting
Susan Conover	Fall 2010	System Flexibility and Energy Harvesting
Charles Wensel	Fall 2010-Spring 2011	Energy Harvesting
Matthew Wright	Summer 2011	NSF REU: Verrocchio Project
Jacqueline Nicol	Summer 2011	NSF REU: Verrocchio Project

Jun En	Summer 2012 – Fall 2012	Innovative Design, SUTD-MIT IDC UROP
Junhua Lieu	Summer 2012 – Spring 2013	SUTD-MIT IDC UROP, Pedagogy Research for Software Engineering
Leonardus Adi Prasetya	Fall 2012 – Spring 2014	Transforming Micro-Robots, Carbon Fiber Lab
Choo Pui Kun (Germaine)	Summer-Fall 2013	Integration of XLP with innovation and design methods
Luo Zhi Ning	Summer-Fall 2013	Integration of XLP with innovation and design methods

Plan II Honors Thesis Advisor:

Matthew Lee	Spring 2006	"A Study of Interdisciplinary Design Methodologies"
David Zummo	Spring 2011	"Familiarity, Representation Form, and Directed Focus in Design by Analogy"

VITA:

Kristin L. Wood, Professor,
Engineering and Product Development (EPD) Pillar Head, &
Co-Director of the International Design Center
Singapore University of Technology and Design (SUTD)

Dr. Kristin L. Wood is currently a Professor, Engineering and Product Development (EPD) Pillar Head, and Co-Director of the International Design Center at the Singapore University of Technology and Design (SUTD). Dr. Wood completed his M.S. and Ph.D. degrees in Mechanical Engineering (Division of Engineering and Applied Science) at the California Institute of Technology, where he was an AT&T Bell Laboratories Ph.D. Scholar. He received his Bachelor of Science in Engineering Science (Magna cum Laude, minor in mathematics) from Colorado State University, May 1985. Dr. Wood joined the faculty at the University of Texas in September 1989 and established a computational and experimental laboratory for research in engineering design and manufacturing, in addition to a teaching laboratory for prototyping, reverse engineering measurements, and testing. During the 1997-98 academic year, Dr. Wood was a Distinguished Visiting Professor at the United States Air Force Academy where he worked with USAFA faculty to create design curricula and research within the Engineering Mechanics / Mechanical Engineering Department. Through 2011, Dr. Wood was a Professor of Mechanical Engineering, Design & Manufacturing Division at The University of Texas at Austin. He was a National Science Foundation Young Investigator, the "Cullen Trust for Higher Education Endowed Professor in Engineering," "University Distinguished Teaching Professor," and the Director of the Manufacturing and Design Laboratory (*MaDLab*) and *MORPH* Laboratory.

Dr. Wood has published more than 300 commentaries, refereed articles and books, and has received four ASME Best Research Paper Awards, three ASEE Best Paper Awards, an ICED Best Research Paper Award, the Keck Foundation Award for Excellence in Engineering Education, the ASEE Fred Merryfield Design Award, the NSPE AT&T Award for Excellence in Engineering Education, the ASME Curriculum Innovation Award, the Engineering Foundation Faculty Excellence Award, the Lockheed Martin Teaching Excellence Award, the Maxine and Jack Zarrow Teaching Innovation Award, the Academy of University Distinguished Teaching Professors' Award, and the Regents' Outstanding Teacher Award. Of particular note are Dr. Wood's published books in design, including "Product Design: Techniques in Reverse Engineering and New Product Development" with Dr. K. Otto and "Tools for Innovation" with Dr. A. Markman.

Dr. Wood is currently supervising a number of graduate students on projects related to product design, development, and evolution. Such projects include design innovation, design-by-analogy, advanced manufacturing processes, such as Solid Freeform Fabrication, methods in product development and innovation, design for manufacturing and tolerance methods, machine-system design, design for product flexibility, design transformer theory, reverse engineering, and design teaching and learning methods for kindergarten through graduate levels. Example applications of this research include the development of unmanned aerial vehicles, micro-electro-mechanical systems, flexible consumer products, energy harvesting systems, and transformer / reconfigurable systems.

Dr. Wood annually teaches a number of outreach short courses in Design Technology and Engineering for All Children (DTEACh), he was the Area Coordinator for the Design and Manufacturing group at UT, he was the conference and committee chair for the annual ASME International Design Theory

and Methodology (DTM) Conference, he was an Associate Editor for the ASME Journal of Mechanical Design, he served as an invited panelist for the UK Engineering and Physical Sciences Research Council (EPSRC) Innovative Manufacturing Research Centers, he serves on the editorial board of the International Journal of Product Development (IJPD), and he was a founding Board Member of The Design Society, an international organization. Beyond these academic pursuits, Dr. Wood annually carries out a number of consulting projects with a variety of companies, focusing on intellectual property, design process assessments, systems design, product design, prototyping, product testing, and methods in creativity and innovation.

Career Goal: The current and near-future objective of Dr. Wood's career is to lead the development of design strategies, representations, and methods that will result in more comprehensive design tools, innovative products, innovative manufacturing processes, and design teaching aids at the college, K-12, and industrial levels.